SHARP SERVICE MANUAL

S71F9SX51A7//

PAL SYSTEM
COLOUR TELEVISION
Chassis No. 21A

MODEL SX-51A7

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

ELECTRICAL SPECIFICATIONS

Convergence ..... Self Converging System
Focus ..... High Bi-Potential Electrostatic
Sweep Deflection ..... Magnetic
Intermediate Frequencies
  Picture IF Frequency 36.875MHz
  Sound IF Carrier Trap 31.375/31.135MHz
  Colour Sub-Carrier Frequency 32.445MHz
Power Input ..... 240V AC 50Hz
Power Consumption 105W

Specifications are subject to change without prior notice.

Audio Power Output Rating . 4.0W x 2 (M.P.O.)
Speaker
  Size ..... 9 x 5cm Elliptic x 2pcs
  Voice Coil Impedance ..... 8 ohms at 400 Hz
Aerial Input Impedance
  VHF/UHF ..... 75 ohm Unbalanced
Receiving System ..... CCIR PAL B
Tuning Ranges (AUSTRALIA Channel)
  VHF-Channels ..... 0 thru 11
  UHF-Channels ..... 28 thru 69

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In this Service Manual there are two sections; the first part (up to page **46**) is assigned to the descriptions of the SX-51A7 and the second part to the descriptions of the **TELETEXT unit AN-222TX (option)** applied to the SX-51A7.

WARNING

The chassis in this receiver is partially hot. Use an isolation transformer between the line cord plug and power receptacle, when servicing this chassis.
To prevent electric shock, do not remove cover. No user — serviceable parts inside. Refer servicing to qualified service personnel.

SHARP CORPORATION

IMPORTANT SERVICE NOTES

Maintenance and repair of this receiver should be done by qualified service personnel only.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove static charge from it by connecting a 10 kohm Resistor in series with an insulated wire (such as a test probe) between picture tube dag and 2nd anode lead. (AC line cord should be disconnected from AC outlet.)

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage completely.

X-RAY

This receiver is designed so that any X-Ray radiation is kept to an absolute minimum. Since certain malfunctions or servicing may produce potentially hazardous radiation with prolonged exposure at close range, the following precautions should be observed:

1. When repairing the circuit, be sure not to increase the high voltage to more than 29.0 kV, (at beam 0 μA) for the set.
2. To keep the set in a normal operation, be sure to make it function on 24.8 kV ± 1.5 kV (at beam 1100 μA) in the case of the set. The set has been factory — Adjusted to the above-mentioned high voltage.
   ∴ If there is a possibility that the high voltage fluctuates as a result of the repairs, never forget to check for such high voltage after the work.
3. Do not substitute a picture tube with unauthorized types and/or brands which may cause excess X-ray radiation.

BEFORE RETURNING THE RECEIVER

Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators etc.

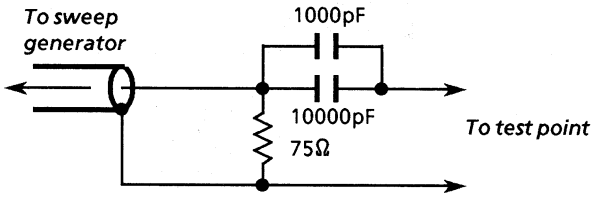
SERVICE ADJUSTMENT
PIF/AFT/SIF/AGC ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

1. Tuner IFT Coils

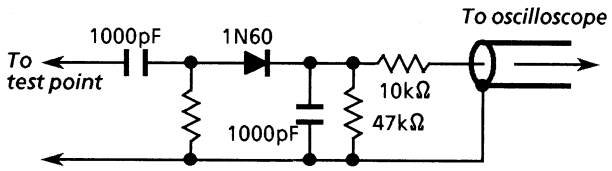
The tuner has been factory preset (no adjustment is needed).

1. Set reception channel at E10 (When such signal is not available, set V_T voltage at 10V in V_H band).
2. Connect sweep generator's output to the test point of tuner, by using a 75Ω DC cut probe.



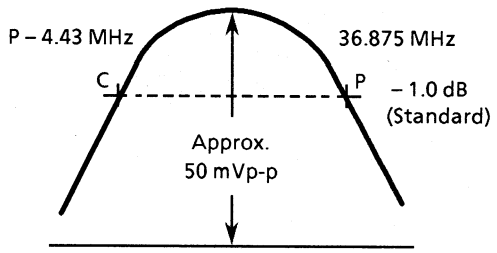
Connection Diagram of 75Ω DC Cut Probe.

Note: The sweep generator's probe should be grounded closely to the tuner test point.



Connection Diagram of Low Impedance Probe (with Detector).

1. Output level of sweep generator : 80dB
2. Connect response lead (low impedance probe with detector) to TP201.
3. PIF AGC:
   Apply DC 2.4V to TP208.
4. RF AGC:
   Apply DC 4.0V to the tuner AGC terminal.
5. Adjust the tuner IF coils to obtain the waveform as shown in the figure below.

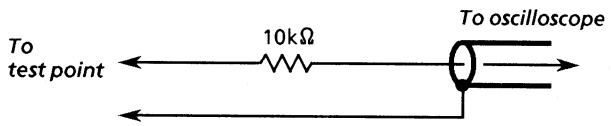


Adjust so that "P"and "C" are at the same level.

2. P-Detector Adjustment

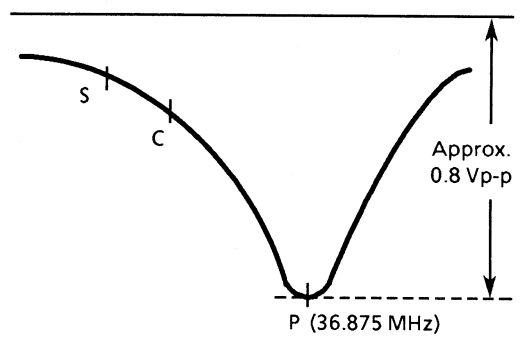
Adjusting Point
☐ **T205: P-Detector coil**

1. Connect sweep generator's output to TP202.
   - Probe in use: 75Ω DC cut probe
   - Sweep output level: 90 dB
2. PIF AGC:
   Apply 2.4V DC to TP208.
3. Have AFT muted.
4. Connect response lead to the base of Q205 .
   The response lead in use should be a direct probe with a resistor of 10 kohms included.



10 kΩ Direct Probe.

1. Adjust T205 so that 36.875 MHz signal is at maximum (± 50 kHz).



* Adjust PIF AGC voltage so that the output waveform is of approx. 0.8 Vp-p.

PIF/AFT/AGC ADJUSTMENT (Continued)

Adjusting Conditions	Adjusting Procedurs

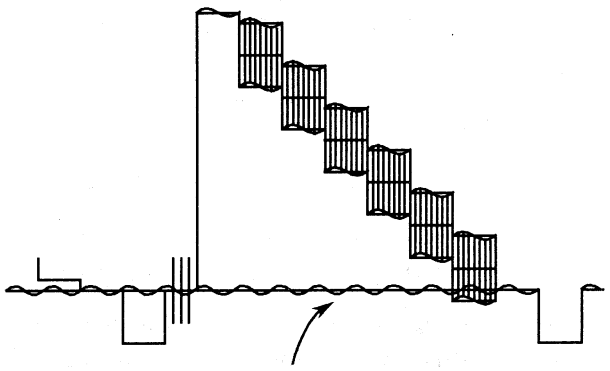
3. AFT Adjustment

Adjusting Point
☐ **T205: AFT coil**

1. Receive "COLOUR BAR" signal with color bar generator.
   - Signal strength: Over 55dB, Below 80dB
2. Connect oscilloscope to TP203.
   - Oscilloscope range: 0.5 V/div.
   - Sweep time: 20 μsec/div.
   - Synchronization: Horizontal sync.
3. Connect the output of SSG (Standard Signal Generator) to the tuner IF output terminal across a capacitor of 1pF.
   - SSG output frequency: 36.875 MHz ± 5 kHz (non modulated)
   - SSG output level: approx. 85 dB

   * When the preset button is set at "PST" position, AFT is turned OFF.
   * When the preset switch is set at NORMAL position, AFT is turned ON.

1. Set the preset switch at "PST" position and adjust TUNING button (Up or Down) of tuning control so that the output waveform suffers no beating.
2. Set the Preset button at NORMAL position.
3. Adjust T205 so that no beating is caused at the output waveform.

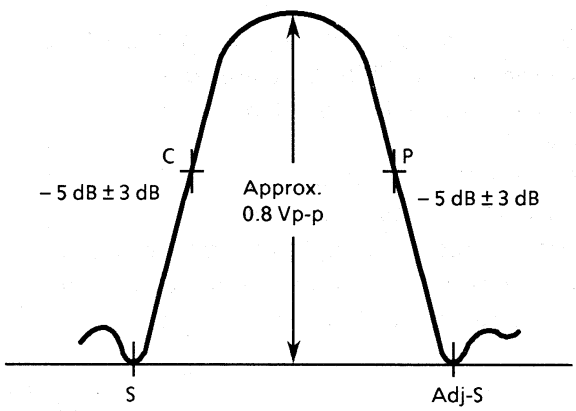


Finely adjust to make zero the beating

4. PIF Overall Adjustment

1. Receive channel E10 signal.
   If channel E10 signal is not available, Set V_T voltage at 10V in V_H band.
2. Connect sweep generator's output to the test point of tuner.
   - Probe in use: 75Ω DC cut probe
   - Sweep output level: 90 dB
3. Connect response lead to TP203.
   The response lead in use should be a direct probe with a resistor of 10 kohms included.
4. RF-AGC:
   Apply approx. 4.0V DC to the tuner AGC terminal.
5. PIF AGC:
   Apply approx. 2.4V DC to TP208.
6. Connect a 120 ohm damping resistor in parallel to R215, short C223.
7. Turn off AFT:
   Make the voltage of pin (11) of IF unit 6.0V.

1. Adjust IF AGC voltage so that the output waveform is of approx. 0.8Vp-p.
2. Check that the overall waveform is as shown in Figure below.



PIF/AFT/SIF/AGC ADJUSTMENT (Continued)

Adjusting Conditions	Adjusting Procedurs

5. RF-AGC Cut-In Adjustment

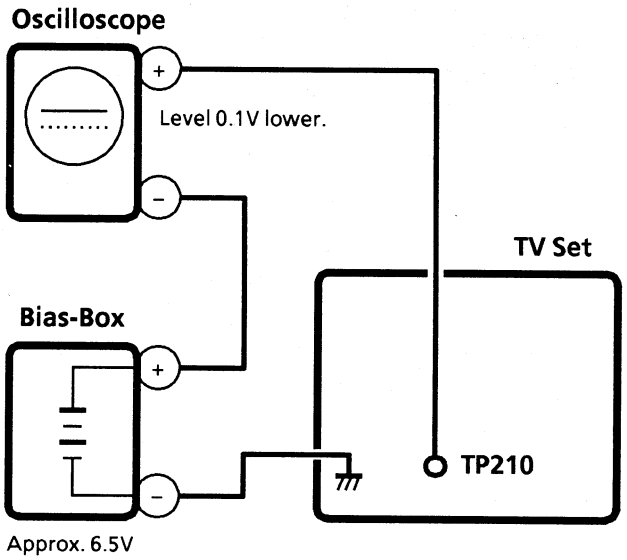
Adjusting Point

☐ **R248: RF-AGC control**

1. Keep the AGC Cut-in control near the center position.
2. Receive "COLOUR BAR" signal.
   - Signal strength:
     57dB ± 1 dB (with 50Ω open)
3. Connect the oscilloscope to the tuner's AGC terminal (TP210).
   - Range: DC range
   - Voltage: 10mV/div.
   - Sweep: 10msec./div.

   * Set the bias box to about 7.0V and turn up the synchroscope range to 10mV (DC).

1. Turn R248 to obtain the highest voltage.
2. Turn R248 slowly in the opposite direction until the voltage drops 0.1V lower than the highest level.
3. Change the antenna input signal to 65dB ± 2dB and make sure there is no noise. Turn up the input signal to 90 — 95dB to be sure that there is no cros-modulation beat.



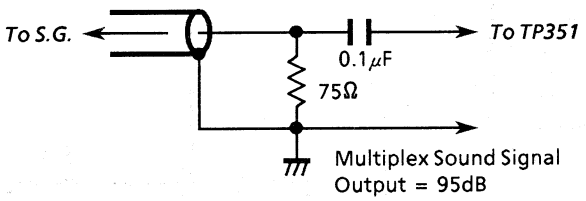
SIF MPX ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

1. 5.5MHz/5.74MHz Detector Adjustment

Adjusting Point
☐ **T353: 5.5 MHz Detector coil**
☐ **T354: 5.74 MHz Detector coil**

1. Apply 5V DC bias voltage to TP360 (pin (5) of IC351).
2. Apply the multiplex sound signal to TP351 (pin (11) of IC351) through the probe shown below. The multiplex sound signal consists of carriers only. (Both S1 and S2 are unmodulated).
   - Mode: Bilingual



3. Connect an oscilloscope (set to 1V/DIV DC) to TP352 (pin (39) of TP352) and TP353 (pin (3) of IC352).

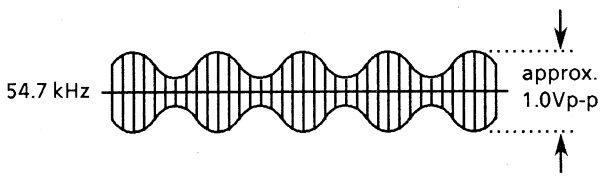
1. Adjust T353 to obtain 4.6 ± 0.2V DC at TP352.
2. Adjust T354 to obtain 4.6 ± 0.2V DC at TP353.

2. Pilot Detector. Adjustment

Adjusting Point
☐ **R383: Pilot Det. control**

1. Apply the multiplex sound signal in the same way as T353 and T354.
   Multiplex sound signal consists of:
   S1: unmodulated, bilingual
   S2: unmodulated
2. Apply 5.0V DC to TP360 (pin (5) of IC351).
3. Connect an oscilloscope (set to 50mV/DIV AC, 2msec/cm) to TP357 (pin (10) of IC352).

1. Adjust R383 so that 274.1 Hz signal becomes maximum (approx. 1.0Vp-p).



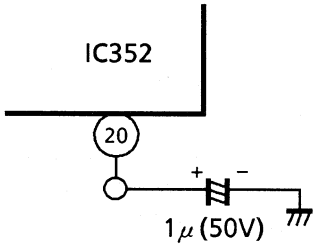
SIF MPX ADJUSTMENT (Continued)

Adjusting Conditions	Adjusting Procedurs

3. PLL Adjustment

Adjusting Point
☐ **R394: PLL control**

1. Apply the "MULTIPLEX SOUND" signal in the same way as T353 and T354.
2. Apply 5.0V DC voltage to TP360 (pin (5) of IC351).
3. Set the "MULTIPLEX SOUND" signal at MONORAL mode.
4. Ground TP356 (pin (20) of IC352) through 1μF/50V electrolytic capacitor.
5. Connect the counter to TP355.



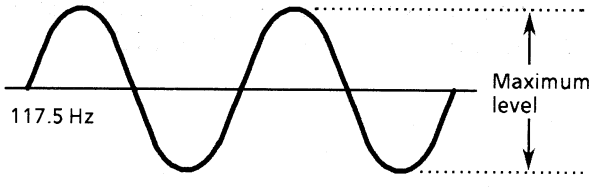
1. Adjust R394 to obtain 196Hz signal.
   - Counter probe:
     10:1, below 100P, above 1M ohm.

4. Stereo/Bilingual Adjustment

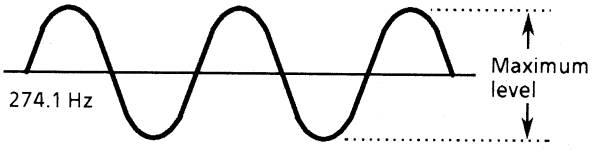
Adjusting Point
☐ **R387: Stereo control**
☐ **R391: Bilingual control**

1. Apply the "MULTIPLEX SOUND" signal in the same way as T353 and T354.
2. Apply 5.0V DC voltage to TP360 (pin (5) of IC351).
3. Connect an oscilloscope (set to 5mV/DIV AC 2msec/cm) to TP356 (pin (20) of IC352).

1. Set the "MULTIPLEX SOUND" signal in STEREO mode. Adjust R387 to obtain the maximum level of the 117.5Hz at pin (20).



2. Set the "MULTIPLEX SOUND" signal in BILINGUAL mode. Adjust R391 to obtain the maximum level of the 274.1Hz at pin (26).



SIF MPX ADJUSTMENT (Continued)

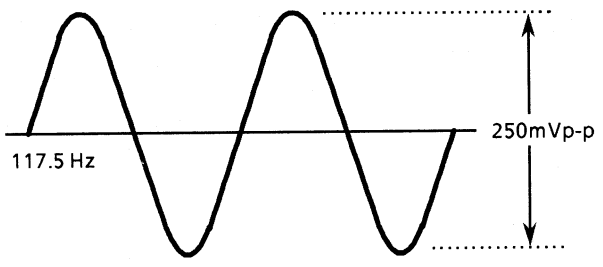
Adjusting Conditions	Adjusting Procedurs

5. Pilot Level Adjustment

Adjusting Point
☐ **R378: Pilot Level control**

1. Apply the "MULTIPLEX SOUND" signal in the same way as T353 and T354.
2. Apply 5.0V DC voltage to TP360 (pin (5) of IC351).
3. Connect an oscilloscope (set to 5mV/DIV AC 2msec/cm) to TP356 (pin (20) of IC352).

1. Set the "MULTIPLEX SOUND" signal in STEREO mode. Adjust R378 to obtain 250mVp-p at TP356.

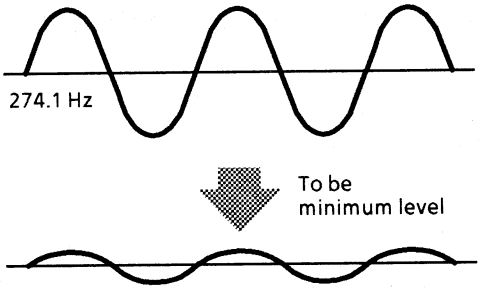


6. Mono/Mono Cancel Adjustment

Adjusting Point
☐ **R379: Mono/Mono Cancel control**

1. Apply the "MULTIPLEX SOUND" signal in the same way as T353 and T354.
2. Apply 5.0V DC voltage to TP360 (pin (5) of IC351).
3. Set the "MULTIPLEX SOUND" signal in MONORAL mode.
   - S1: 1kHz, 50kHz DIV.
   - S2: 274.1Hz, 50kHz DIV.
4. Connect an oscilloscope (set to 5mV/DIV AC 2msec/cm) to TP356 (pin (20) of IC352).

1. Adjust R379 to obtain minimum level of 274.1Hz at TP356 (pin (20) of IC352).



7. Level Adjustment

Adjusting Point
☐ **R372: Level control**

1. Apply the "MULTIPLEX SOUND" signal in the same way as T353 and T354.
2. Apply 5.0V DC voltage to TP360 (pin (5) of IC351).
3. Set the "MULTIPLEX SOUND" signal in BILINGUAL mode.
   - S1: 1kHz, 50kHz DIV.
   - S2: 1kHz, 50kHz DIV.
4. Connect an oscilloscope (set to 50mV/DIV AC 0.5msec/cm) to pin (1) of connector-(YA).

1. Make pins (1) and (3) of connector-(YA) 10k ohm-terminated and adjust R372 to obtain 1.0Vp-p at pin (1) of connector-(YA) (LEFT S-OUT).

SIF MPX ADJUSTMENT (Continued)

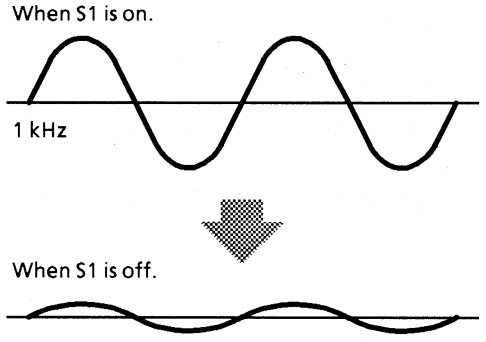
Adjusting Conditions	Adjusting Procedurs

8. Separation Adjustment

Adjusting Point
☐ **R374: Separation control**

1. Apply the "MULTIPLEX SOUND" signal in the same way as T353 and T354.
2. Apply 5.0V DC voltage to TP360 (pin (5) of IC351).
3. Set the "MULTIPLEX SOUND" signal in STEREO mode.
   S1: 1kHz, 50kHz DIV.
   S2: 1kHz, 50kHz DIV.
4. Connect an oscilloscope (set to 100mV/DIV AC 0.5msec/cm) to pin (1) of connector-(YA) (LEFT S-OUT).
   S1: Off

1. Adjust R374 to obtain minimum level of 1kHz.

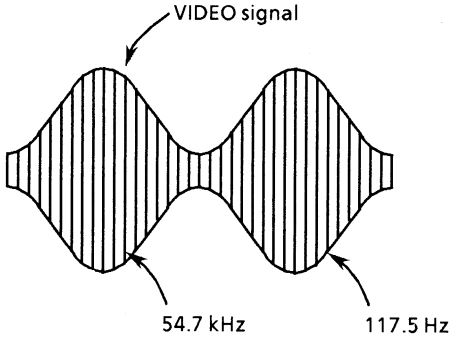


9. 36.875 MHz Adjustment

Adjusting Point
☐ **T352: 36.875 MHz Detection coil**

1. Receive the "STEREO" signal on channel E5 ("MONOSCOPE PATTERN" signal).
2. Connect an oscilloscope (set to 50mV/DIV, AC 2msec/cm) to TP357 (pin (10) of IC352).

1. Adjust R374 to obtain minimum level of 1kHz.



HORIZONTAL FREQUENCY ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

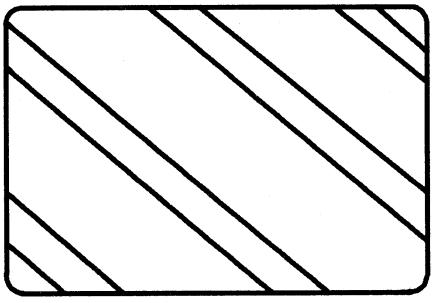
1. Horizontal Frequency Adjustment

Adjusting Point

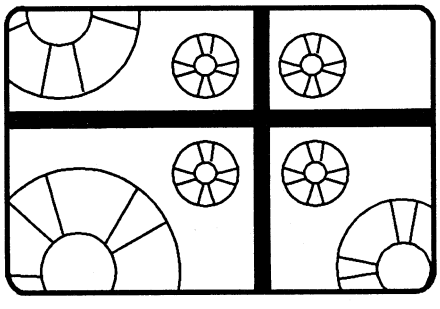
☐ **R604: Horizontal Frequency control**

1. Before adjusting the IF unit, set R604 to the center position.
2. Turn the power on and receive the "MONOSCOPE PATTERN" signal.
3. Set the Brightness and Contrast controls to maximum.
4. Make TP601 (pin (25) of IC201) and TP204 (12V line) short-circuited.

1. Adjust R604 so that the horizontal sync (image) be ensured.
2. Finally remove the short-circuit.



With TP601 and TP204 short-circuited. Adjust to ensure the horizontal sync.



VIDEO/CHROMA ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

1. CRT Cut-off Adjustment

Adjusting Point ☐ **R853: Red Bias control** ☐ **R859: Green Bias control** ☐ **R865: Blue Bias control** ☐ **T602: Screen control (a part of T602)** ☐ **R857: Green Drive control** ☐ **R863: Blue Drive control** ***Note: Prior to this adjustment, warm up the unit with the beam current of more than 700μA for more than 30 minutes.*** 1. Receive "MONOSCOPE PATTERN" signal. 2. Set R-bias control at MIN position. Set G-bias control at MIN position. Set B-bias control at MIN position. Set G-drive control at CENTER position. Set B-drive control at CENTER position. 3. Set the Screen control at MIN position. 4. Short TP401 and TP402. 5. Short TP501 and TP502.	1. Slowly turn the Screen control clockwise until the horizontal raster appears slightly, and stop it. 2. Here, one of the three colours (red, blue, green) appears first as the Screen control is turned. So, touching off the Bias control belonging to the first colour, use and move the other two controls so that the horizontal raster becomes white. 3. Turn the Screen control counterclockwise until the horizontal raster disappears, and stop it.

2. White Balance and Back Ground Adjustment

Adjusting Point ☐ **R857: Green Drive control** ☐ **R863: Blue Drive control** ☐ **R420: Sub-Contrast control** ***Note: Prior to this adjustment, warm up the unit with the beam current of more than 700μA for more than 30 minutes.*** 1. Receive "MONOSCOPE PATTERN" signal. 2. Set the Contrast control and Brightness control at MAX position. 3. Connect beam ammeter to TP601 and TP602. (Full scale: 3 mA)	1. Adjust Sub-Contrast control so that the beam current becomes 1.1 mA (rough adjustment) 2. Adjust Green Drive control and Blue Drive control so that the colour temperature is at 7300°K. (High beam: 1.1 mA). 3. Adjust the Contrast control and Brightness control so that the beam current is approx. 200μA, and check that the colour temperature is at 7300°K. If the temperature is not at 7300°K, go back to "CRT CUT-OFF ADJUSTMENT" and repeat the adjustment.

VIDEO/CHROMA ADJUSTMENT (Continued)

Adjusting Conditions	Adjusting Procedurs

3. Sub-Contrast Adjustment

Adjusting Point
☐ **R420: Sub-Contrast control**

Note: Prior to this adjustment, warm up the unit with the beam current of more than 450μA for more than 30 minutes.

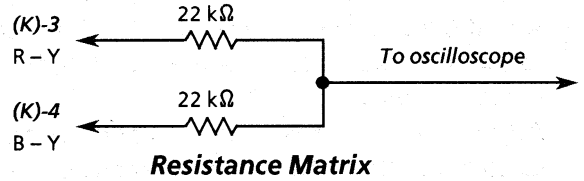
1. Receive "MONOSCOPE PATTERN" signal.
2. Set the Contrast control and Brightness control at MAX position.
3. Connect beam ammeter to TP601 and TP602. (Full scale: 3 mA)

1. Adjust Sub-Contrast control so that the beam current becomes 1.1 mA.

4. PAL Chroma Adjustment

Adjusting Point
☐ **R806: 1H-Delay Amp. control**
☐ **T801: 1H-Delay Phase control**

1. Receive "PAL COLOUR BAR" signal.
   * Before this adjustment, the PIF/AFT/AGC adjustment must have been completed. Short TP401 and TP402.
2. Connect the following resistance matrix to pins 3 and 4 of the connector (K), to which an oscilloscope is connected.



Resistance Matrix

3. Set the Colour, Contrast and Brightness controls at NORMAL position.

1. Adjust the Colour control so that the output waveform of colour difference signal becomes 3.0 Vp-p.
2. Adjust 1H-delay amp. control and 1H-delay phase control so that the output waveform shown in Fig. ***a*** is corrected to that shown in Fig. ***b***.

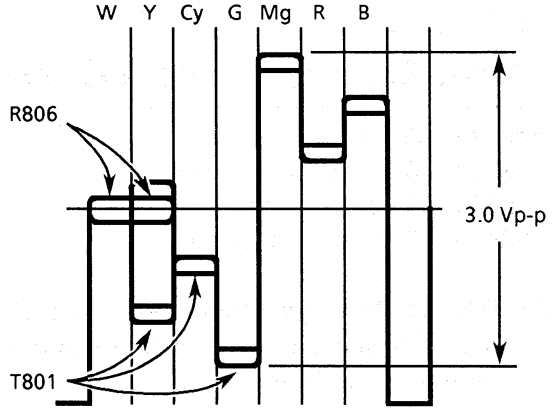


Figure a. Waveform before the adjustment

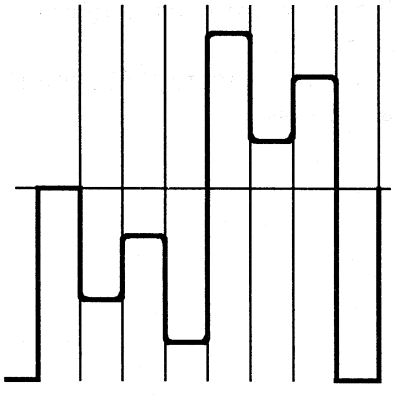
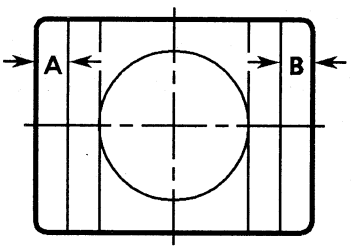


Figure b. Waveform after the adjustment

DEFLECTION LOOP ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

1. Horizontal Centering Adjustment

This adjustment should be performed after the purity and convergence adjustments. Adjusting Point ☐ **R613: Horizontal Centering control** 1. Receive "MONOSCOPE PATTERN" signal.	1. Adjust R613 so that the horizontal center of picture is at the position which gives the relation of **A = B**. 

2. Horizontal Size Adjustment

Adjusting Point ☐ **S601: Horizontal Size control** 1. Receive "MONOSCOPE PATTERN" signal. 2. Set the Brightness control at MAX position.	1. Adjust S601 so that the horizontal size of picture is at the best point. ● Horizontal size: 8% TYP (Max. 10%)

3. Vertical Linearity Adjustment

Adjusting Point ☐ **R507: Horizontal Size control** 1. Receive "MONOSCOPE PATTERN" signal.	1. Adjust R507 so that the vertical linearity of picture is at the best point.

4. Vertical Size Adjustment

Adjusting Point ☐ **R509: Vertical Size control** 1. Receive "MONOSCOPE PATTERN" signal. 2. Set the Brightness and Contrast controls at MAX position.	1. Adjust R509 so that the vertical size of picture is at the best point. ● Vertical size: 8% TYP (Max. 10%)

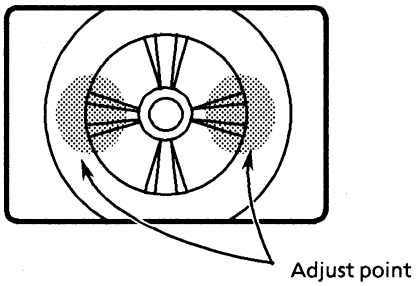
5. Vertical Centering Adjustment

This adjustment should be performed after the purity and convergence adjustments. Adjusting Point ☐ **S501: Horizontal Centering control** 1. Receive "MONOSCOPE PATTERN" signal.	1. Adjust S501 so that the vertical center of picture is at the geometrical center of screen.

FOCUS ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

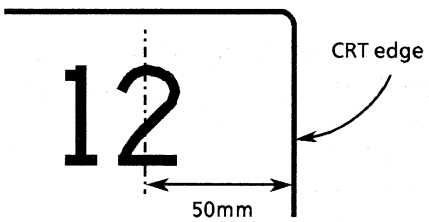
1. Focus Adjustment

Adjusting Conditions	Adjusting Procedurs
1. Receive "MONOSCOPE PATTERN" signal. 2. Set Contrast control at NORMAL position. 3. Set Brightness control at MAX position (with 0.8 mA of beam current). (Instead of monoscope pattern signal, it is allowed to use white pattern signal of 88% modulation.)	1. Adjust Focus control (a part of T602) to have best focus at the central area of CRT. 

CRT DISPLAY ADJUSTMENT

Adjusting Conditions	Adjusting Procedurs

1. Sign Position Adjustment

Adjusting Conditions	Adjusting Procedurs
1. Tune the channel call on (on the Remote Controller).	1. Adjust T1001 so that the center of the first-digit figure of the channel number be about 50mm from the right edge of the CRT. 

PURITY ADJUSTMENT

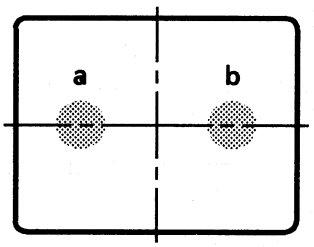
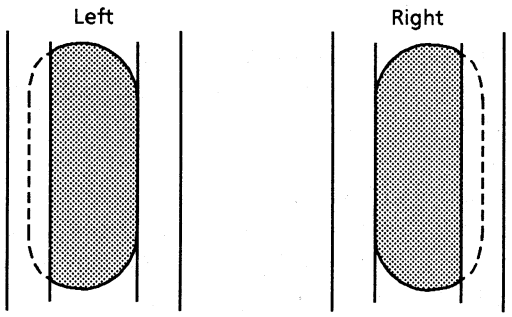
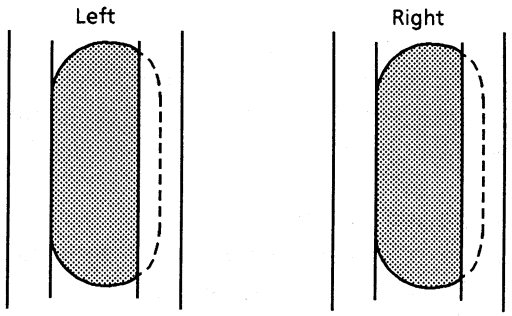


Figure A.



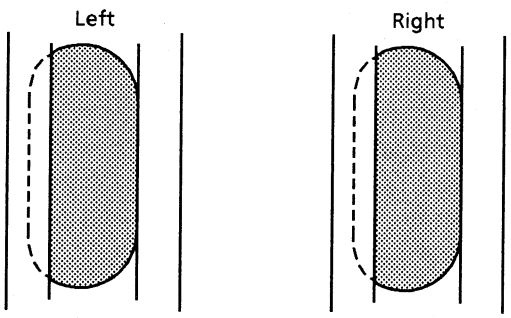
The beam landing is shifted outwards.

Figure B.



The beam landing is shifted to right.

Figure C.



The beam landing is shifted to left.

Figure D.

Adjusting Conditions

1. Prior to the purity adjustment, warm up the unit with beam current of more than 700 μA, for more than 30 minutes.
2. Receive the green signal alone and adjust the beam current to approx. 700 μA.
3. Fully degauss the CRT with the degaussing coil.
4. Before the purity adjustment, it is needed to roughly adjust the static convergence.
5. Set the purity magnet at the position which gives zero (0) magnetic field.

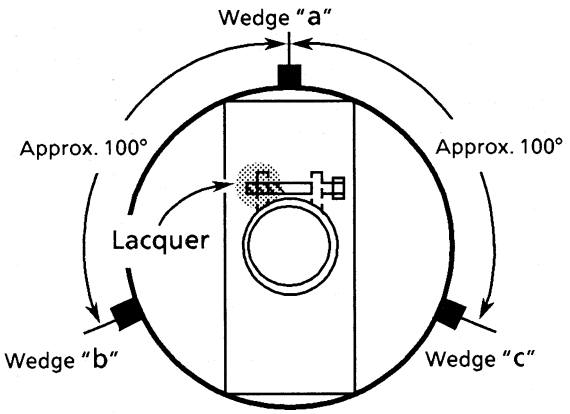
Adjusting Procedurs

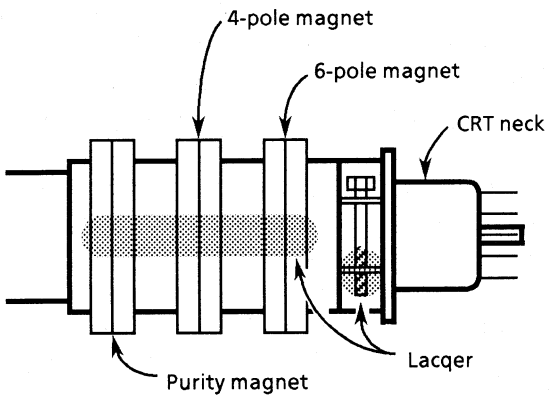
Adjustment:

During the adjustment, keep the unit facing the east.

1. Observe the green spots ("**a**" and "**b**") with a microscope as shown in ***Fig. A***, and adjust the purity magnet so that they are at the specified landing position.
2. If the right and left green spots are both deviated outwards from their landing positions as shown in ***Fig. B***, push the deflection yoke forwards until their positions are corrected.
3. If the beam landing is shifted to right or left as shown in ***Figs. C*** and ***D***, adjust the opening degree of the purity magnet so that the beam landing is correctly positioned.
4. Adjust the purity magnet so that the beam landing is correct at either of the central part, right and left parts of screen, then check that the green beams at four corners of screen are all correctly positioned.
   Finally, check that the beam landing at any pat of screen is satisfactory with the Rank "B" specifications.
5. If the green beam is positioned to mix with the other colour, pull the deflection yoke backward.
   - Outside of the specified landing:
     To front of the deflection yoke.
   - Inside of the specified landing:
     To back of the deflection yoke.
6. Set the raster rotation at "0" position (with the unit facing the east).
7. Tighten the screws of the deflection coil.
   Tightening torque: 11 kg ± 2 kg.

CONVERGENCE ADJUSTMENT





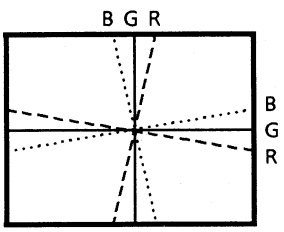


Figure a.

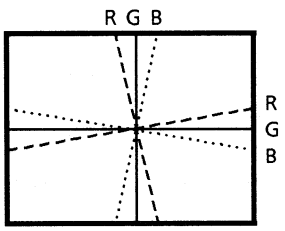


Figure b.

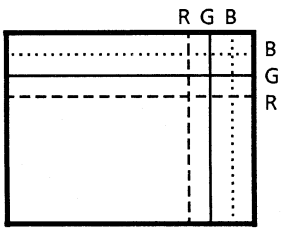


Figure c.

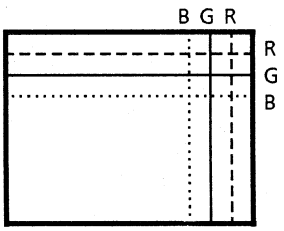


Figure d.

Adjusting Conditions

This adjustment should be performed after the purity magnet adjustment.

1. Receive "CROSSHATCH PATTERN" signal.
2. Set the Brightness control and Contrast control at MAX position.

Adjusting Procedurs

STATIC CONVERGENCE

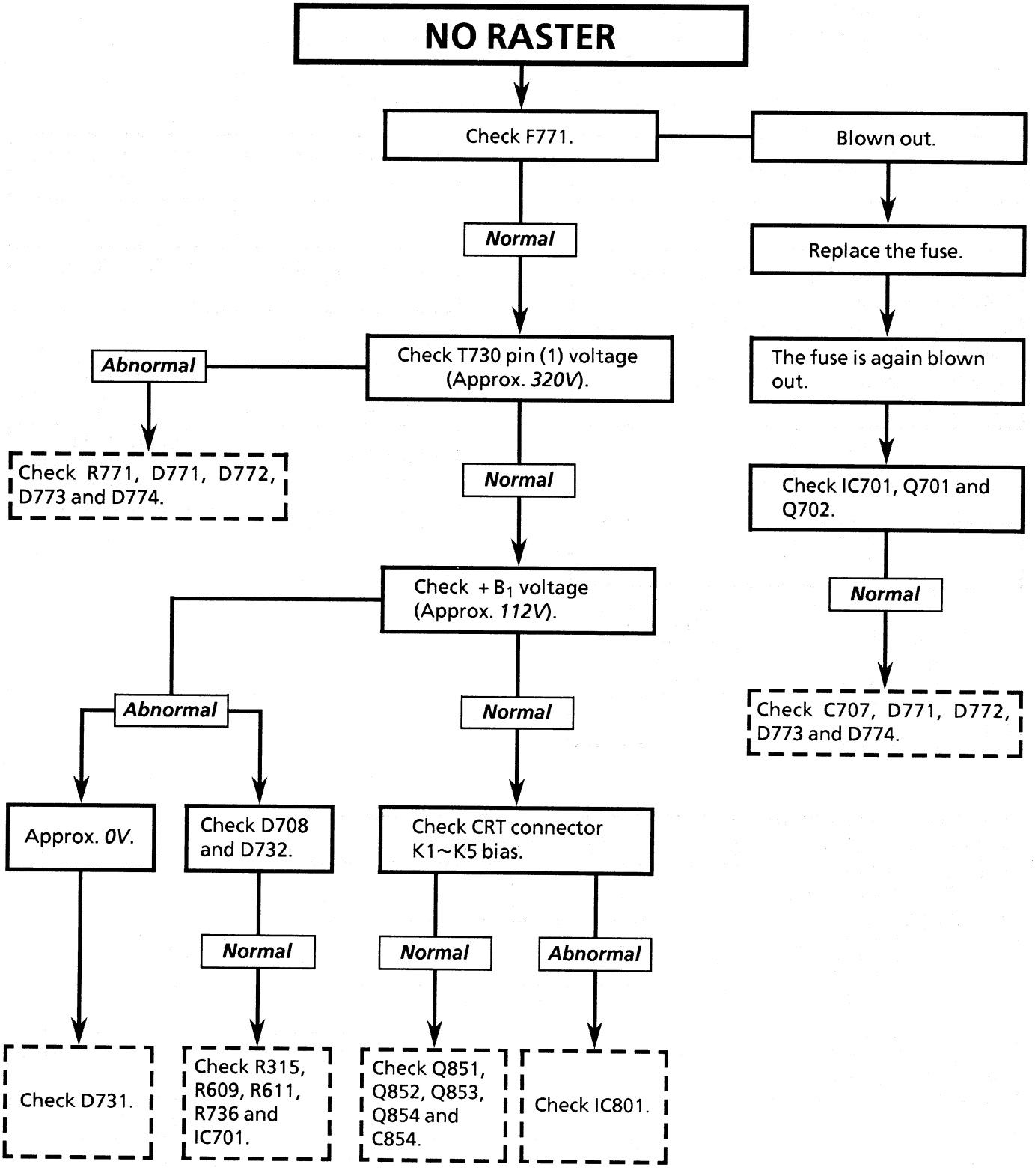
3. Adjust the opening degree of the 4-pole magnet and rotate the magnet to converge red and blue lines.
4. Adjust the opening degree of the 6-pole magnet and rotate the magnet to converge red, blue and green lines.

DYNAMIC CONVERGENCE

5. Dynamic convergence (convergence of the three colour fields) at the edges of CRT screen is accomplished in the following manner.
   - **Convergence in *Fig. a* :**
     Insert wedge"a" between the deflection yoke and CRT, and tilt the deflection yoke upward until the mis-convergence shown in ***Fig. a*** is corrected.
   - **Convergence in *Fig. b* :**
     Insert wedges "b" and "c" between the deflection yoke and CRT, and tilt the deflection yoke until the mis-convergence shown in ***Fig. b*** is corrected.
   - **Convergence in *Fig. c* :**
     Insert wedge "c" deeply between the deflection yoke and CRT, and tilt the deflection yoke to right until the mis-convergence shown in ***Fig. c*** is corrected.
   - **Convergence in *Fig. d* :**
     Insert wedge "b" deeply between the deflection yoke and CRT, and tilt the deflection yoke to left until the mis-convergence shown in ***Fig. d*** is corrected.
6. Stick the three wedges onto the CRT, and apply glass tapes thereon.
7. Apply lacquer to the deflection yoke screw, magnet unit (made of purity, 4-pole and 6-pole magnets) and magnet unit screw.

After the adjustment, receive either the Red or the Blue signal and check that there is no mixture with the other colour signal.

TROUBLE SHOOTING TABLE



CIRCUITS TO BE CHECKED:
- Tuner
- PIF
- Automatic Gain Control
- + B_2 Power Source

NO PICTURE, NO SOUND

Does the noise level increase at max. Contrast, Brightness and Sound controls?

Noise increases but no signal is received.

Check the tuner B_L, B_H, B_U and + B_2 biases.
+ B_2 must be approx. *9V*.
B_L and B_H must be approx. *9V* with the band switch at VHF position.
B_U must be approx. *9V* with the band switch at UHF position.

Normal

Check the tuner AGC.

Normal

Check the tuner circuit.

Abnormal

Check IC201 in IF unit.

Picture noise decreases but sound level varies greatly.

Does the *12V* + B appear at pin (7) of IC201.

Normal

Check MPX sound unit.

Abnormal

Check D733, L732, R731, R648 and Q604.

CIRCUITS TO BE CHECKED:
- SIF Amplifier Circuit.
- Sound Detector Circuit.
- Audio Output Circuit.
- Muting Circuit.

NO SOUND

Does approx. *17V* appear at pin (8) of IC1302?

No

Check Q304, D302, R312, R313, R345, L303 and L304.

Yes

Does the sound level vary at max. sound control?

It varies slightly.

Check Q1005, D1063, R326 and IC1301.

It does not vary.

Check MPX sound unit, connector-(YA), IC1001 and Q1019.

CIRCUIT TO BE CHECKED:
- Sync. Separator Circuit.

NEITHER VERTICAL NOR HORIZONTAL SYNCHRONIZATION

Check C605, R605, C625, IC1401, Q1406 and Q1407.

DEFECTIVE VERTICAL AMP. AND VERTICAL LINEARITY

Readjust vertical size.

- Vertical size is abnormal. → Check R510, R511 and R509.
- Vertical linearity is abnormal. → Check R505, R507, R508 and C508.

NO VERTICAL SCAN

Check IC501 bias.

- ***Normal*** → Check C506 and IC201 (in IF unit).
- ***Abnormal*** → Check IC501, D502, L501 and R521.

CIRCUIT TO BE CHECKED:

- IC801 and it's adjacent circuits.

NO SPECIFIC COLOUR

Specific colour are not produced in colour broadcast reception.

Is some colour produced in B/W broadcast reception?

No

Check IC801, R809, R811, R812, R814, R815, L802, L803 and L805.

Yes

Is the white balance properly adjusted?

No

Readjust the white balance.

Yes

The picture colour is red or cyan.

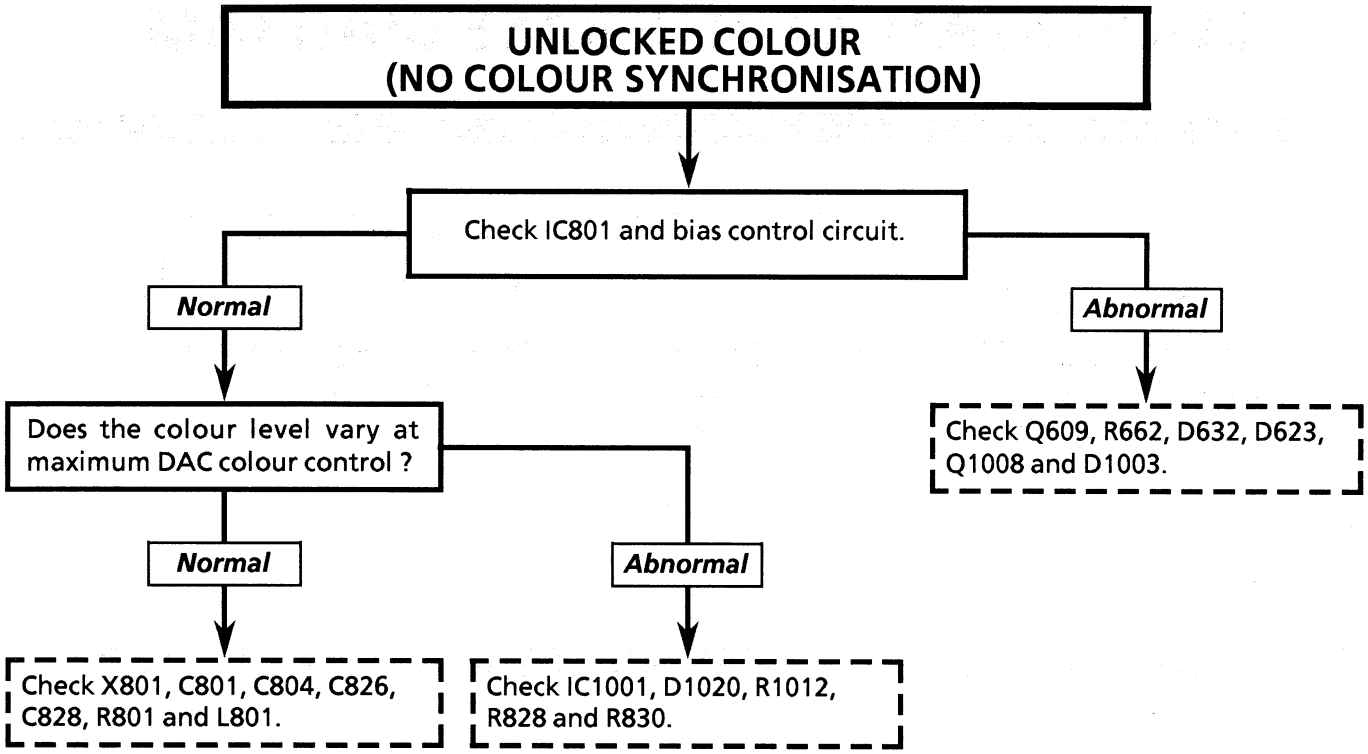
Check Q851 and its adjacent circuits.

The picture colour is green or magenta.

Check Q852 and its adjacent circuits.

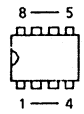
The picture colour is blue or yellow.

Check Q853 and its adjacent circuits.

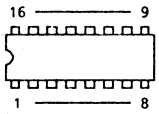

UNLOCKED COLOUR
(NO COLOUR SYNCHRONISATION)
Check IC801 and bias control circuit.
Normal
Abnormal
Does the colour level vary at maximum DAC colour control ?
Check Q609, R662, D632, D623, Q1008 and D1003.
Normal
Abnormal
Check X801, C801, C804, C826, C828, R801 and L801.
Check IC1001, D1020, R1012, R828 and R830.

SOLID STATE DEVICE BASE DIAGRAM

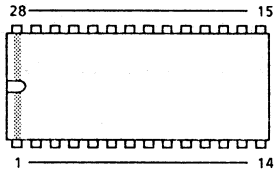
TOP VIEW



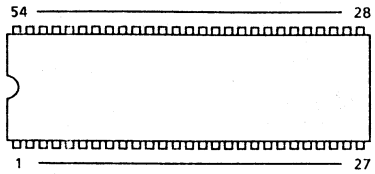
iX1636CE



iX0214CE
TA7750P

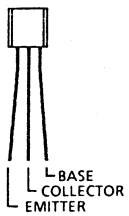


TDA3566A
TDA8305A



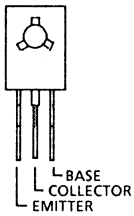
iX1561CE

SIDE VIEW



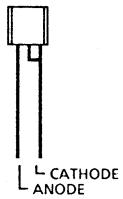
2SA1015
2SC1815
2SC1906
2SC3279
2SC383

2SC3339
2SC3402

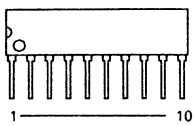


2SC2611

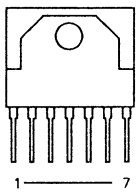
PST529C2



iX0037CE



iX0415CE



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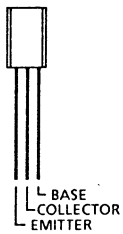
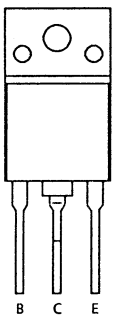
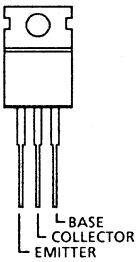


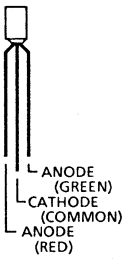
2SC2236
2SC2271



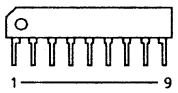
2SD1554



2SD880



PX0077CE



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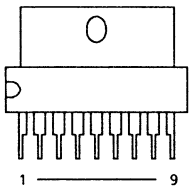
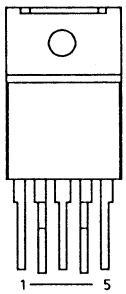
iX0203GE



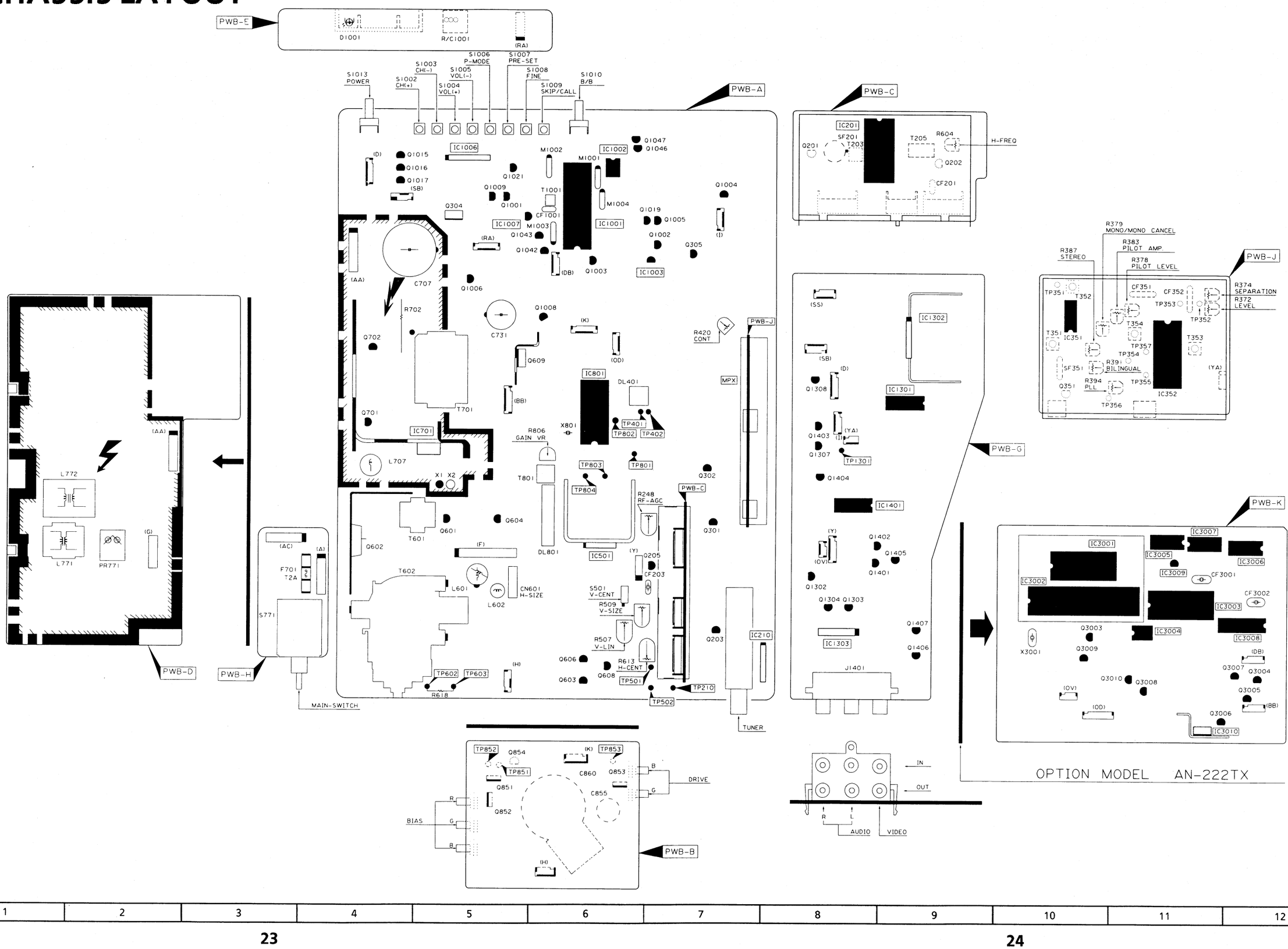
TDA2007



iX1148CE

SX-51A7	SX-51A7

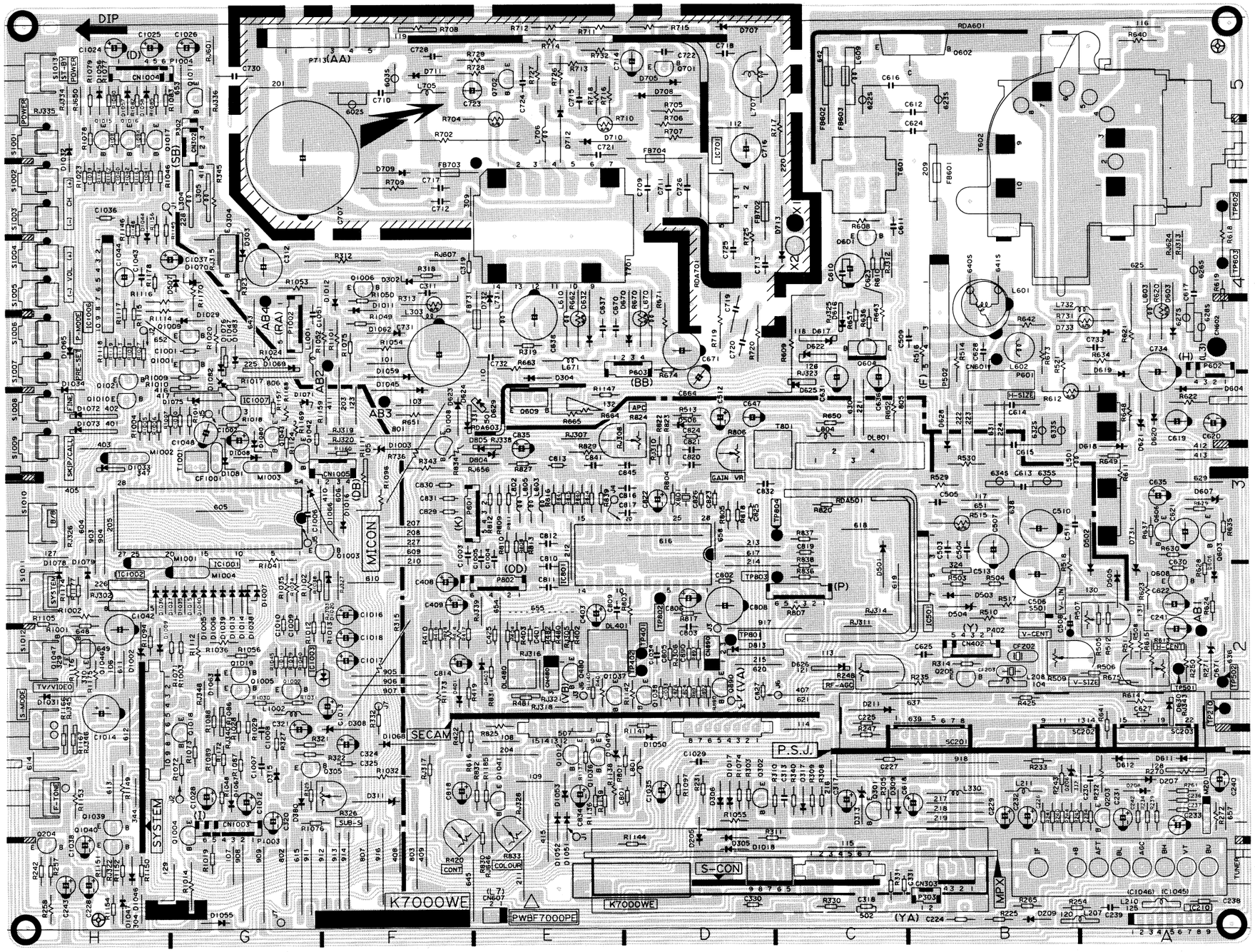
CHASSIS LAYOUT



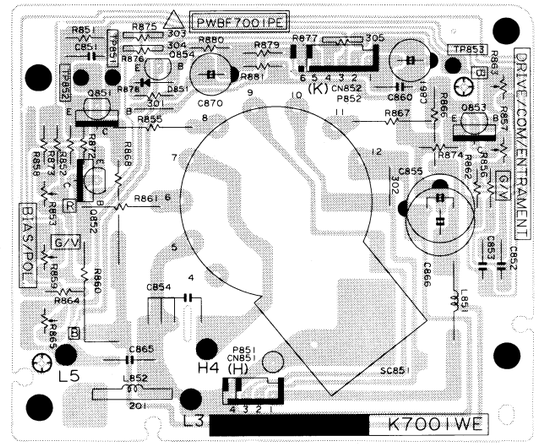
1	2	3	4	5	6	7	8	9	10	11	12

SX-51A7	SX-51A7

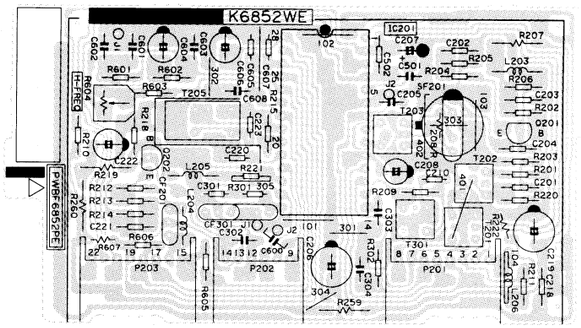
PRINTED WIRING BOARD ASSEMBLIES



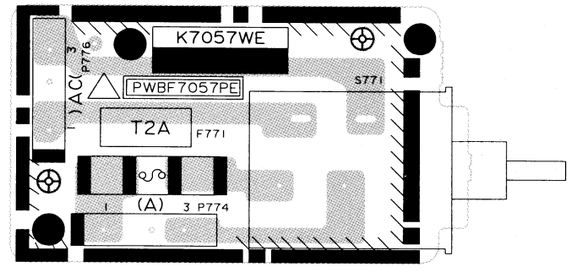
PWB-A Mother Unit (Wiring Side)



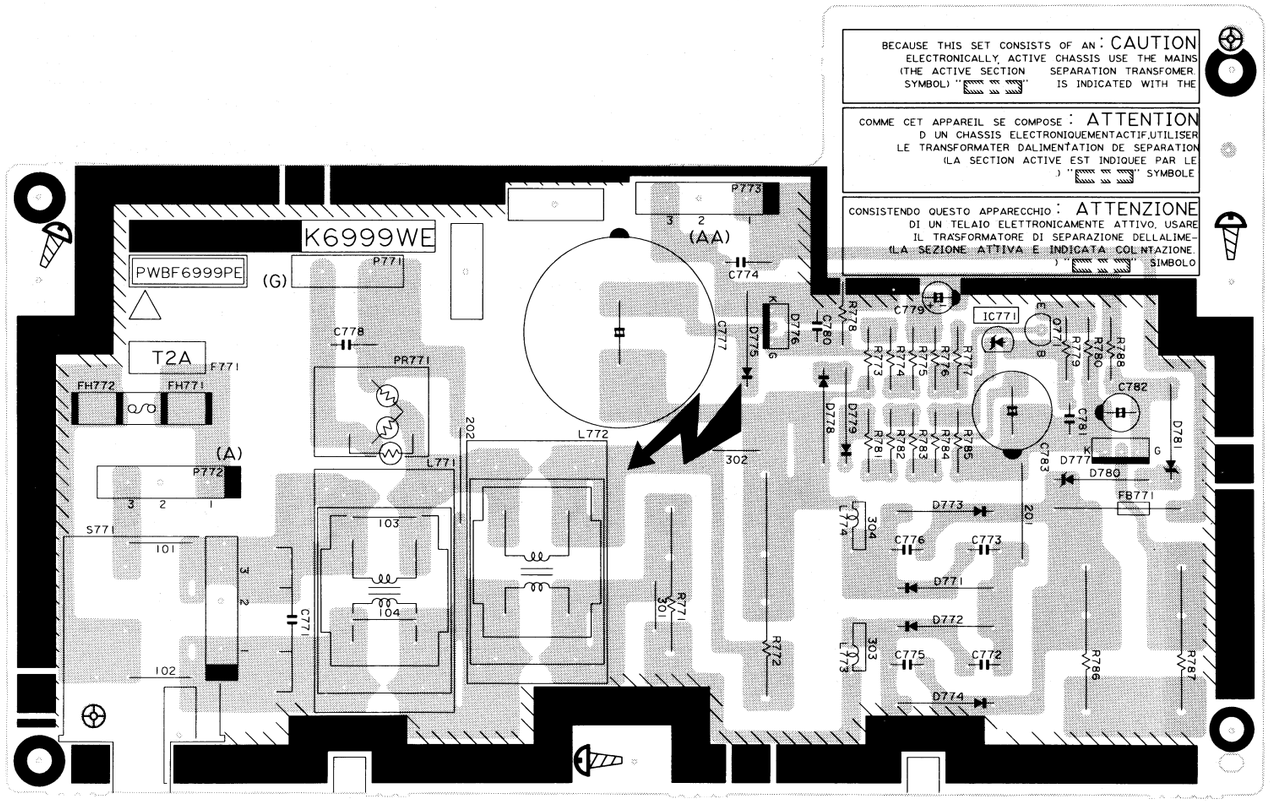
PWB-B CRT Socket Unit (Wiring Side)



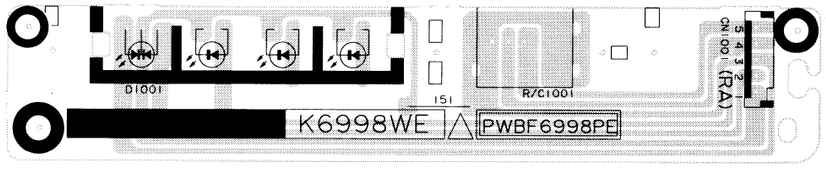
PWB-C IF Unit (Wiring Side)



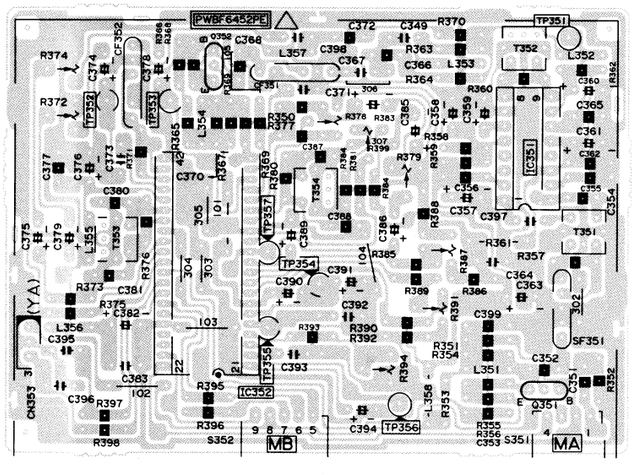
PWB-H Power Unit (Wiring Side)


BECAUSE THIS SET CONSISTS OF AN ELECTRONICALLY, ACTIVE CHASSIS (THE ACTIVE SECTION SYMBOL) " " : CAUTION USE THE MAINS SEPARATION TRANSFOMER IS INDICATED WITH THE
COMME CET APPAREIL SE COMPOSE D UN CHASSIS ELECTRONIQUE (LA SECTION ACTIVE EST INDIQUEE PAR LE SYMBOLE " " : ATTENTION MENTACTIF,UTILISER LE TRANSFORMATER DALIMENTATION DE SEPARATION
CONSISTENDO QUESTO APPARECCHIO DI UN TELAIO ELETTRONICAMENTE ATTIVO, USARE IL TRASFORMATORE DI SEPARAZIONE DELLALIME- (LA SEZIONE ATTIVA E INDICATA COL NTAZIONE. SIMBOLO " " : ATTENZIONE
K6999WE
PWBF6999PE
T2A
IC771
L772
L771
L773
L774
FB771
S771
PR771
FH772
FH771

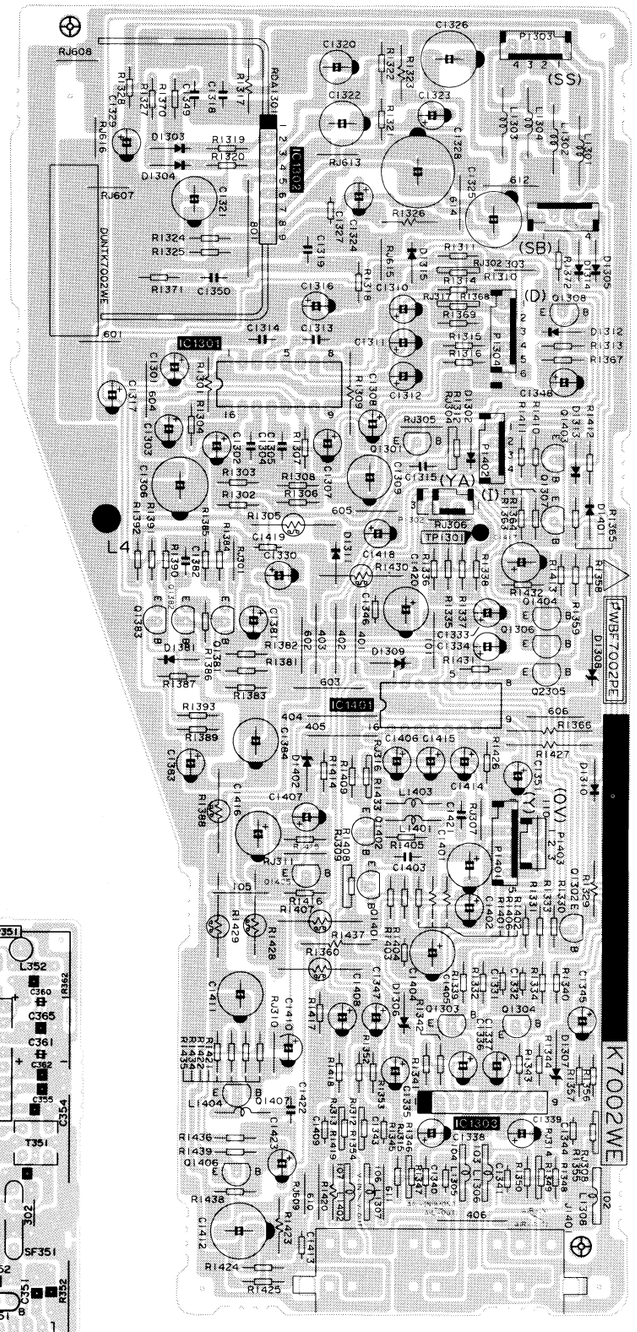
PWB-D Power Unit (Wiring Side)



PWB-E R/C Receiver Unit (Wiring Side)



PWB-J MPX Sound Unit (Wiring Side)

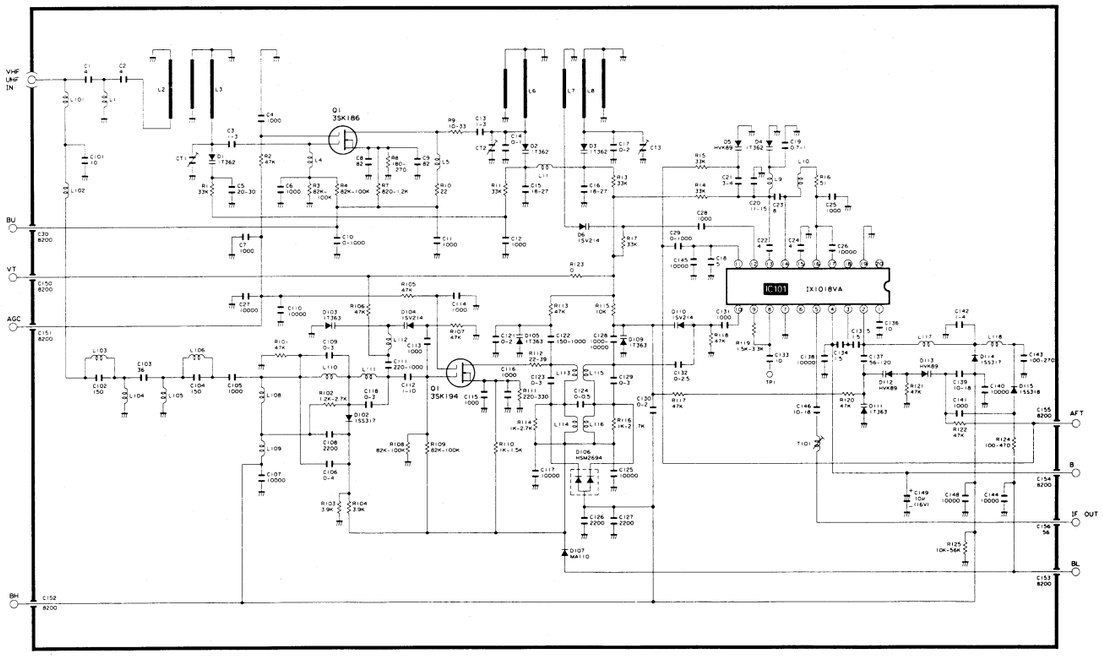


PWB-G A/V Unit (Wiring Side)

SX-51A7	SX-51A7

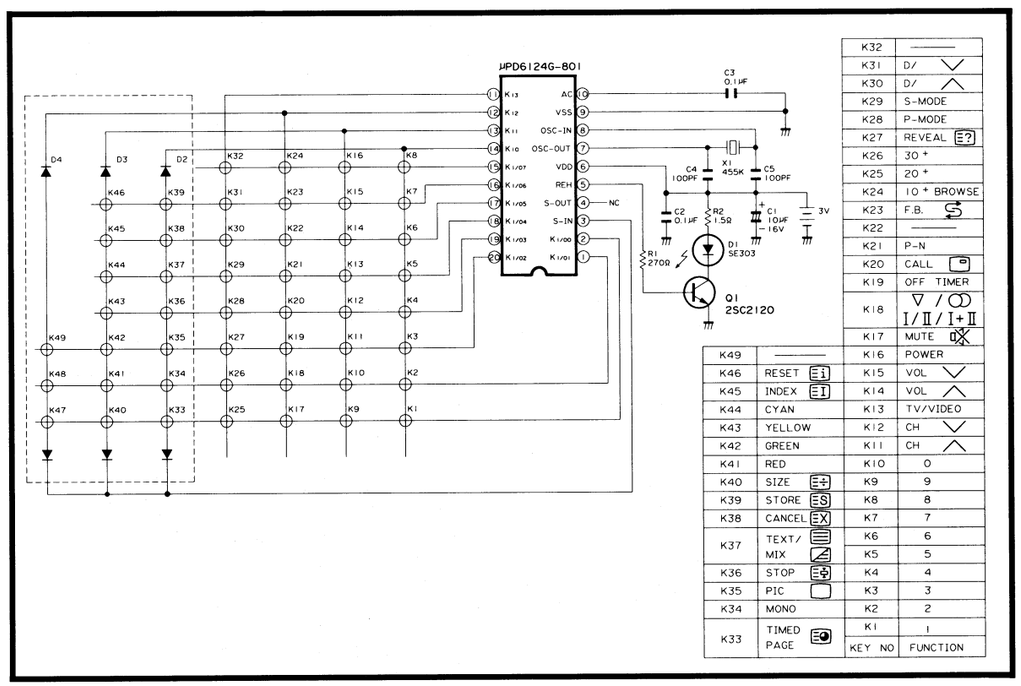
TUNER

⚠ VTUVTSS6A////



INFRARED REMOTE CONTROLLER

RRMCG0824PESA



KEY NO	FUNCTION
K32	
K31	D/ ∨
K30	D/ ∧
K29	S-MODE
K28	P-MODE
K27	REVEAL
K26	30 +
K25	20 +
K24	10 + BROWSE
K23	F.B.
K22	
K21	P-N
K20	CALL
K19	OFF TIMER
K18	▽ / ◯◯ I / II / I+II
K17	MUTE
K16	POWER
K15	VOL ∨
K14	VOL ∧
K13	TV/VIDEO
K12	CH ∨
K11	CH ∧
K10	0
K9	9
K8	8
K7	7
K6	6
K5	5
K4	4
K3	3
K2	2
K1	1
K49	
K46	RESET
K45	INDEX
K44	CYAN
K43	YELLOW
K42	GREEN
K41	RED
K40	SIZE
K39	STORE
K38	CANCEL
K37	TEXT/ MIX
K36	STOP
K35	PIC
K34	MONO
K33	TIMED PAGE

CAUTION: This circuit diagram is original one, therefore there may be a slight difference from yours.

1	2	3	4	5	6

DESCRIPTION OF SCHEMATIC DIAGRAM

SAFETY NOTE:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACEING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

IMPORTANT SAFETY NOTICE:

PARTS MARKED WITH "⚠" (▒▒▒▒) ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFOMANCE OF THE SET.

NOTE:

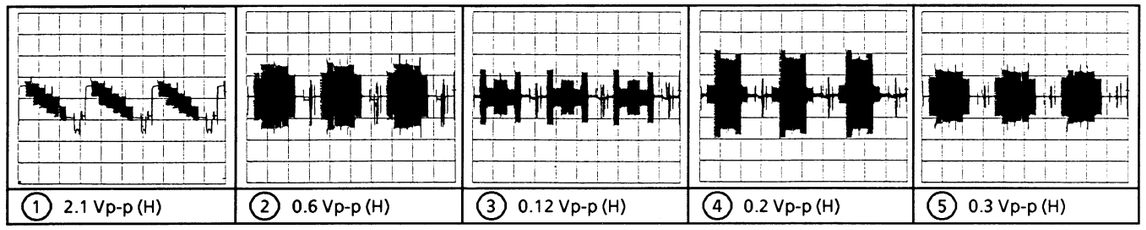
1. *The unit of resistance "ohm" is omitted (K = 1000 ohms, M = Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μF, unless otherwise noted P = μμF.*

VOLTAGE MEASUREMENT CONDITIONS:

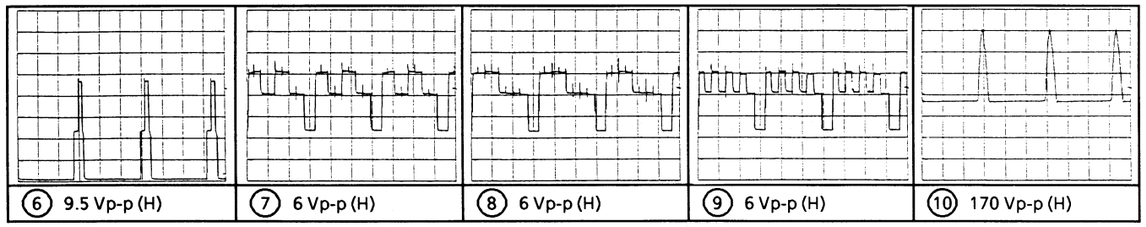
1. *Voltages in parenthesis measured with no signal.*
2. *Voltages without parenthesis measured with 3000 μV B & W or Colour signal.*
3. *All the voltages in each point are measured with VTVM.*

WAVEFORM MEASUREMENT CONDITIONS:

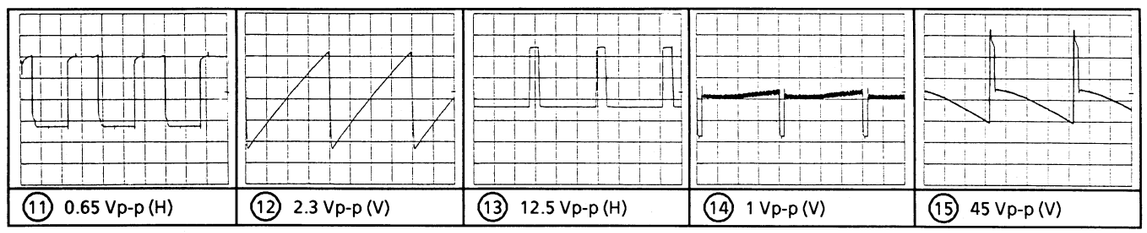
1. *Colour bar generator signal of 2.1 V peak to peak applied at Corrector of Q205.*
2. *Approximately 4.0 V AGC bias.*



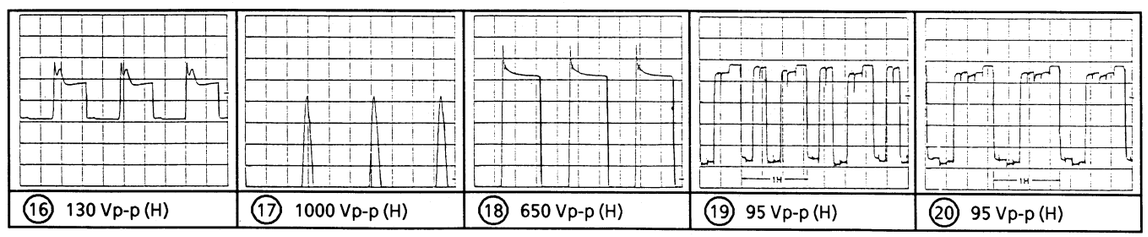
① 2.1 Vp-p (H) ② 0.6 Vp-p (H) ③ 0.12 Vp-p (H) ④ 0.2 Vp-p (H) ⑤ 0.3 Vp-p (H)



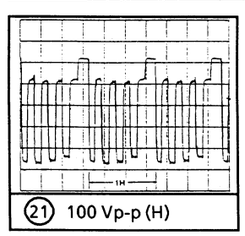
⑥ 9.5 Vp-p (H) ⑦ 6 Vp-p (H) ⑧ 6 Vp-p (H) ⑨ 6 Vp-p (H) ⑩ 170 Vp-p (H)



⑪ 0.65 Vp-p (H) ⑫ 2.3 Vp-p (V) ⑬ 12.5 Vp-p (H) ⑭ 1 Vp-p (V) ⑮ 45 Vp-p (V)



⑯ 130 Vp-p (H) ⑰ 1000 Vp-p (H) ⑱ 650 Vp-p (H) ⑲ 95 Vp-p (H) ⑳ 95 Vp-p (H)



㉑ 100 Vp-p (H)

SHEMATIC DIAGRAM: MOTHER, CRT, IF, POWER and R/C RECEIVER UNITS

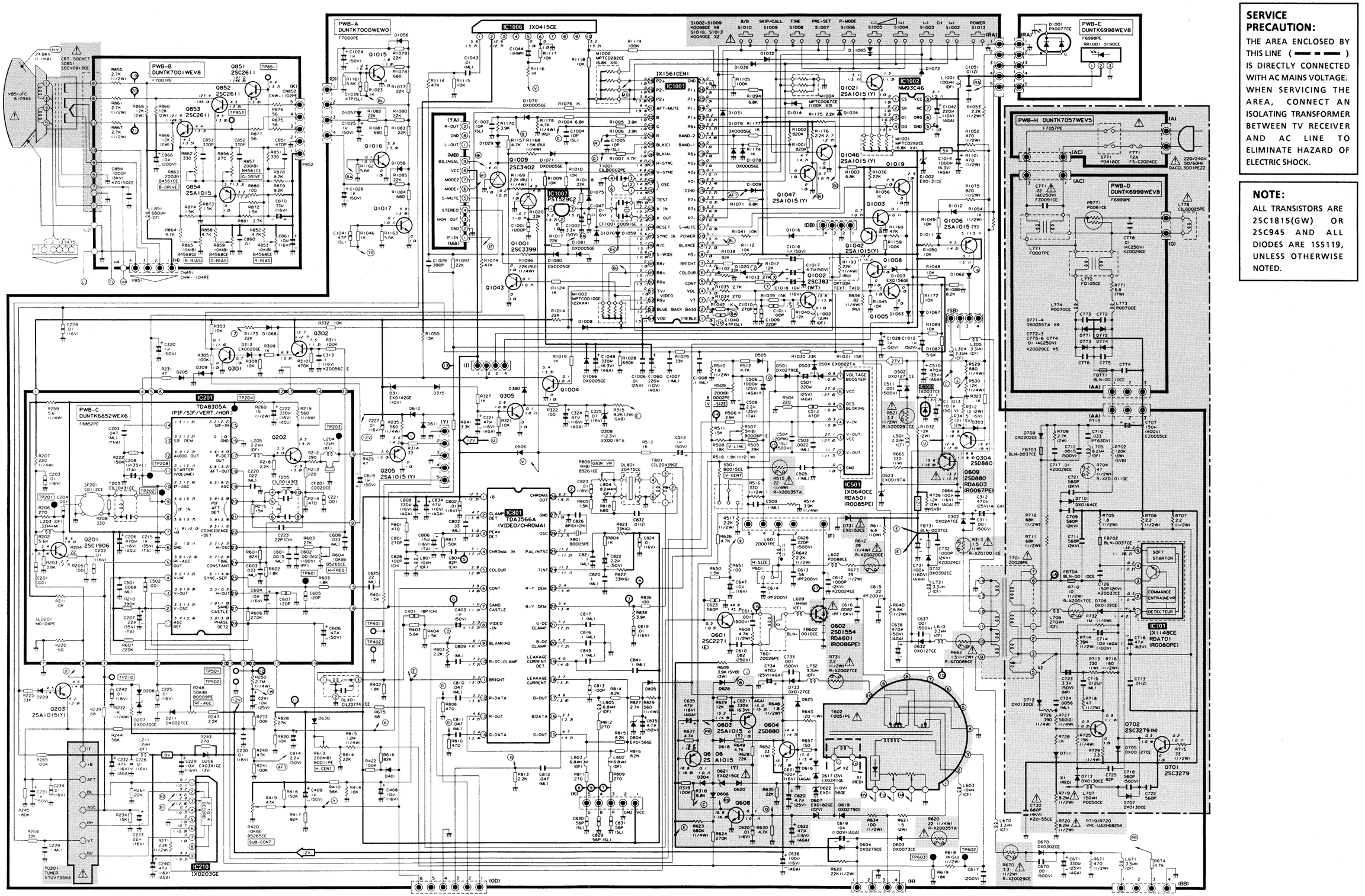
CAUTION: This circuit diagram is original one, therefore there may be a slight difference from yours.

SERVICE PRECAUTION:

THE AREA ENCLOSED BY THIS LINE (▬ ▪ ▬) IS DIRECTLY CONNECTED WITH AC MAINS VOLTAGE. WHEN SERVICING THE AREA, CONNECT AN ISOLATING TRANSFORMER BETWEEN TV RECEIVER AND AC LINE TO ELIMINATE HAZARD OF ELECTRIC SHOCK.

NOTE:

ALL TRANSISTORS ARE 2SC1815(GW) OR 2SC945 AND ALL DIODES ARE 1SS119, UNLESS OTHERWISE NOTED.


PWB-A DUNTK7000WEWO
PWB-B DUNTK7001WEV8
PWB-C DUNTK6852WEX6
PWB-D DUNTK6999WEV8
PWB-E DUNTK6998WEV8
PWB-H DUNTK7057WEV5
IC1001 IX0415CE
IC1002 NM93C46
IC1007 PST529C2
IC201 TDA8305A (PIF/SIF/VERT./HOR.)
IC801 TDA3566A (VIDEO/CHROMA)
IC1501 IX0640CE RDA501 (R0085PE)
IC701 IX0148CE RDA701 (R0080PE)
IC210 IX0203GE
S1002-S1009 K0068CE X8 S1010, S1013 K0040CE X2
B/B S1010
SKIP/CALL S1009
FINE S1008
PRE-SET S1007
P-MODE S1006
(-) S1005
(+) S1004
(-) S1003
CH (+) S1002
POWER S1013
CRT SOCKET SC851 SOCV0913CE
TUNER TUZ01 VTUV7556A
Q851 2SC2611
Q852 2SC2611
Q853 2SC2611
Q854 2SA1015
Q1009 2SC3402
Q1001 2SC3399
Q1043
Q1015
Q1016
Q1017
Q1004
Q1046 2SA1015 (Y)
Q1047 2SA1015 (Y)
Q1019
Q1003
Q1042 2SA1015(Y)
Q1002 2SC383 (WT)
Q1006 2SA1015 (Y)
Q1008
Q1005
Q302
Q301
Q305
Q202
Q205 2SA1015 (Y)
Q201 2SC1906
Q203 2SA1015(Y)
Q601 2SC2271 (E)
Q602 2SD1554 RDA601 (R0086PE)
Q603 2SA1015 (Y)
Q604 2SD880
Q606 2SA1015 (Y)
Q608
Q701 2SC3279
Q702 2SC3279(N)
T1001 CILB0002PE
T801 CILZ0439CE
T501 EXO1252CE
T601 Z0025PE
T602 F0051PE
T701 CILZ0425PE
L1001 100μH (DF)
L501 3.3μH (CF)
L701 3.3μH (CF)
D1001 PX0077CE
D1065
D1072
D1038
D1032
D1070 DX0005GE
D1031
D1079 RI177
D1078
D1057
D1058
D1059
D1076
D1075
D1068
D1080
D1008
D1066 DX0005GE
D1048 330μ (6.3V) (AGA)
D1028 680K
D1029 33K
D1004
D1038
D1020
D1012
D1016
D1017 4.7μ (50V)
D1018 10μ (16V)
D1041 10K
D1042
D1043
D1044
D1045
D1046
D1047
D1048
D1049
D1050
D1051
D1052
D1053
D1054
D1055
D1056
D1062
D1063
D1067
D1089
D1087 5.6K
D1088 8.2K
D1011
D1012
D1001 PX0077CE
D1002 EX0131CE
D1003 EX0156GE
D1005
D1006
D1007
D1009
D1010
D1011
D1012
D1013
D1014
D1015
D1016
D1017
D1018
D1019
D1020
D1021
D1022
D1023
D1024
D1025
D1026
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D1038
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D1042
D1043
D1044
D1045
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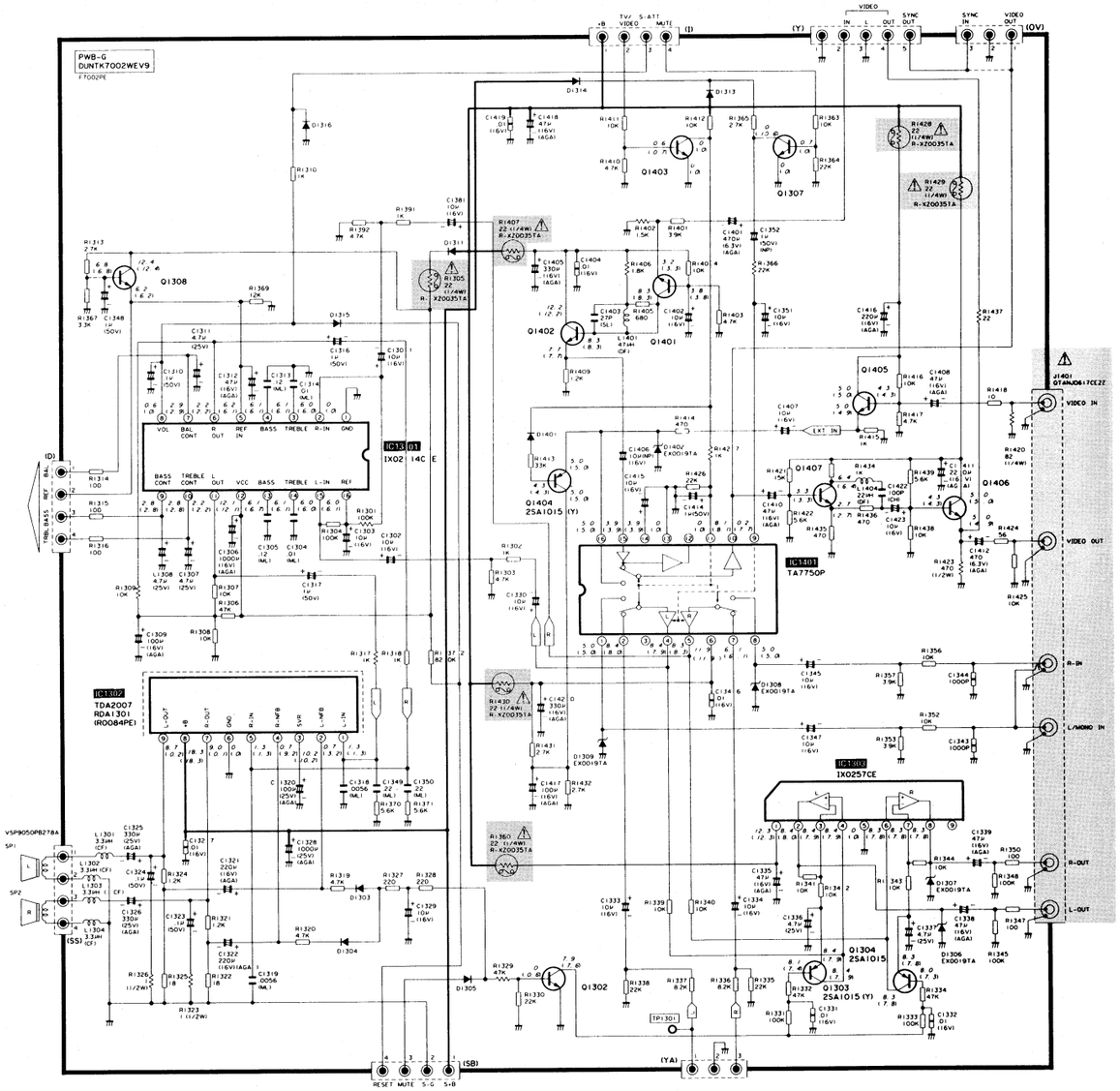
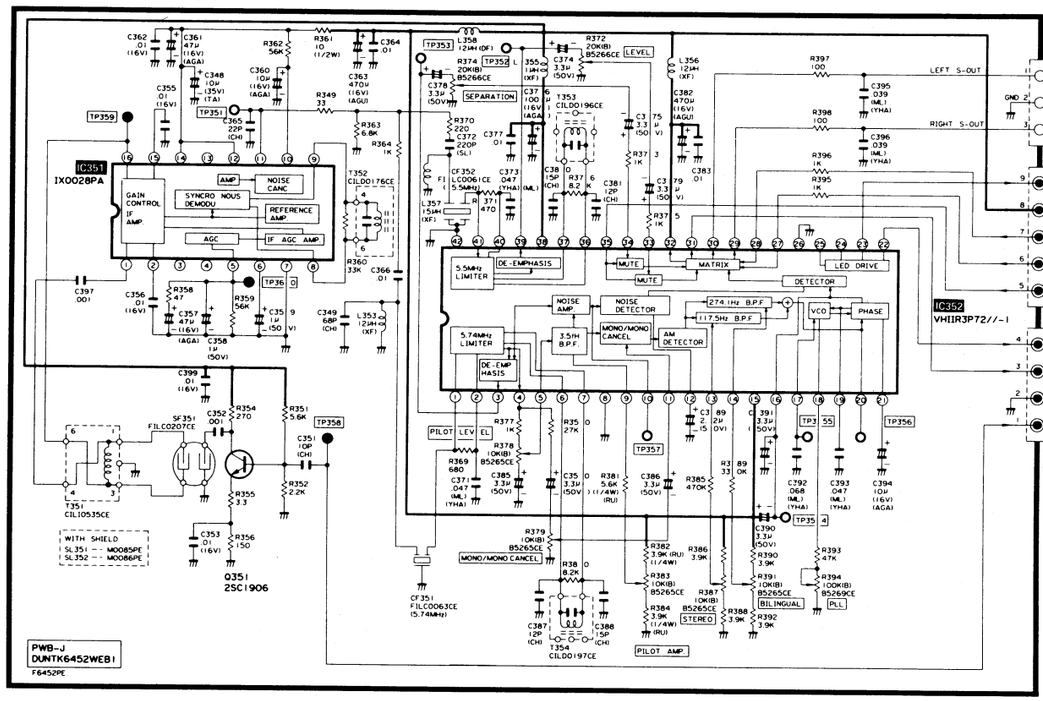
D1047
D1048

SX-51A7	SX-51A7

SHEMATIC DIAGRAM: A/V UNIT

MPX SOUND UNIT

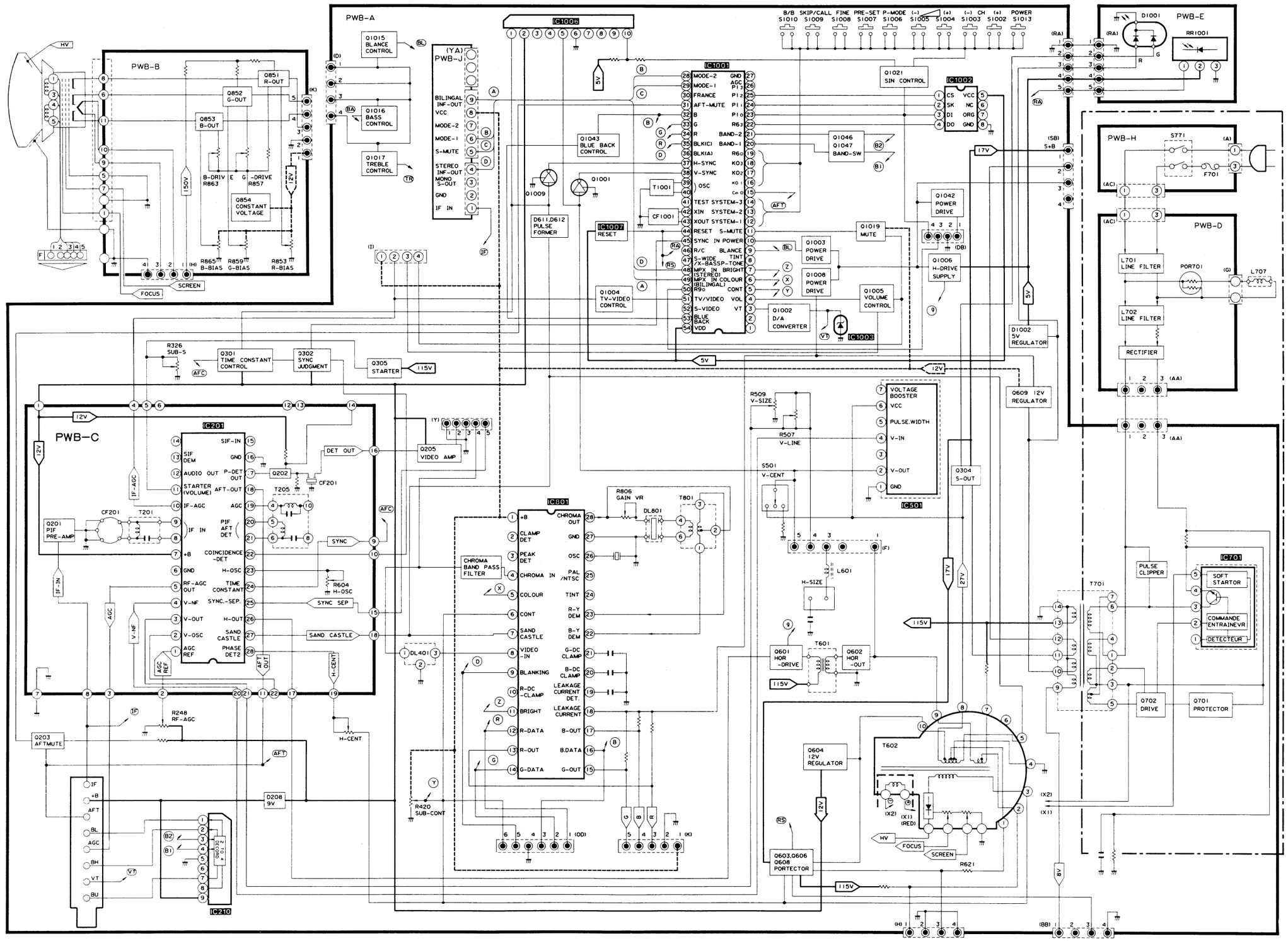




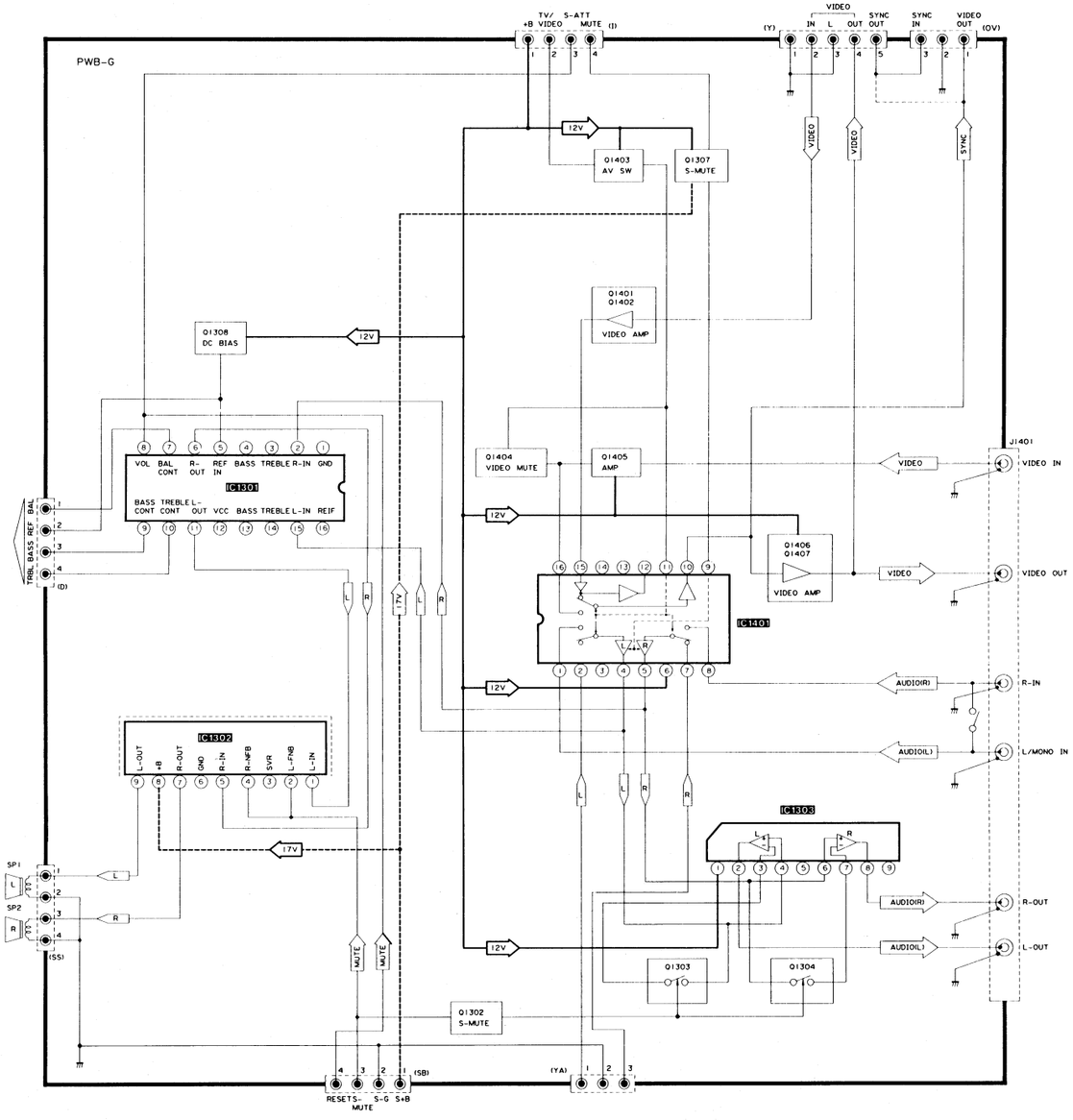
NOTE: ALL TRANSISTORS ARE 2SC1815(GW) OR 2SC945 AND ALL DIODES ARE 1SS119, UNLESS OTHERWISE NOTED.

CAUTION: This circuit diagram is original one, therefore there may be a slight difference from yours.

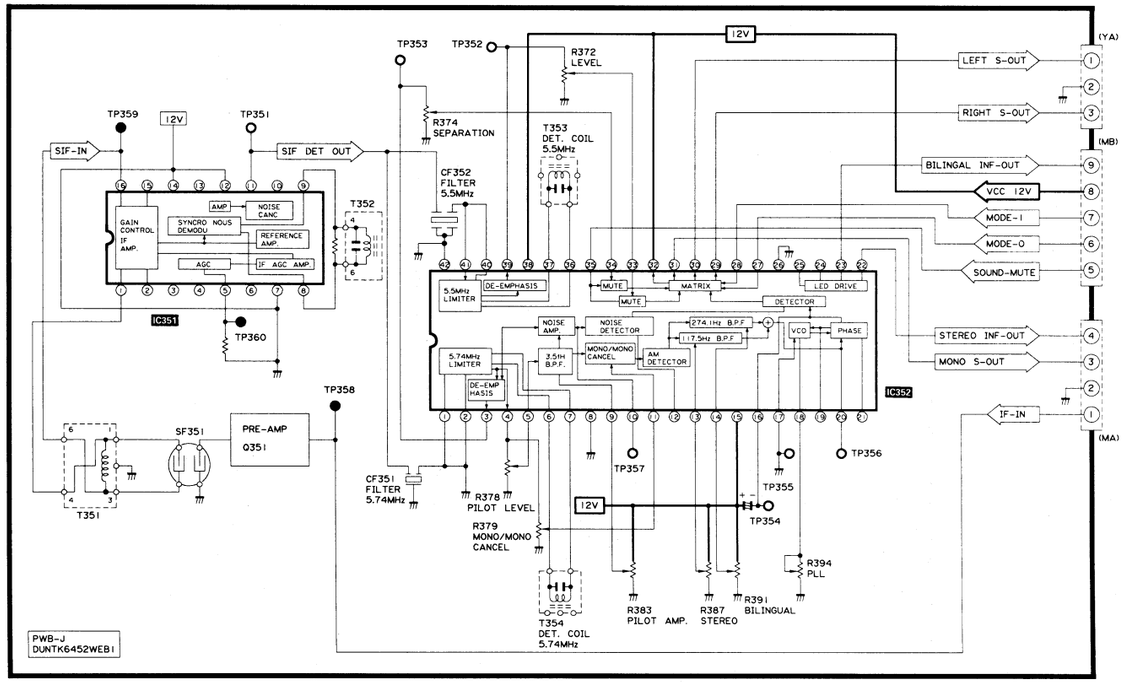
BLOCK DIAGRAM: MOTHER, CRT, IF, POWER and R/C RECEIVER UNIT



BLOCK DIAGRAM: A/V UNIT



MPX SOUND UNIT



PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by ⚠ in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. 4. DESCRIPTION

MARK ★: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description	Code

PICTURE TUBE

⚠V1	VB51JFC6109*S	A	CRT Ass'y	CK
⚠L778	RCiLG0025PEZZ	R	Degaussing Coil	AW
	MSPRT0001PEFJ	R	Spring, CRT	AC

PRINTED WIRING BOARD ASSEMBLIES

(NOT REPLACEMENT ITEM)

PWB-A	DUNTK7000WEW0	–	Mother Unit (W/ PWB-C and J)	—
PWB-B	DUNTK7001WEV8	–	CRT Socket Unit	—
PWB-C	DUNTK6852WEX6	–	IF Unit	—
PWB-D	DUNTK6999WEV8	–	Power Unit	—
PWB-E	DUNTK6998WEV0	–	R/C Receiver Unit	—
PWB-F	*Not used*			
PWB-G	DUNTK7002WEV9	–	A/V Unit	—
PWB-H	DUNTK7057WEV5	–	AC Switch Unit	—
PWB-I	*Not used*			
PWB-J	DUNTK6452WEB1	–	MPX Unit	—

Ref. No.	Part No.	★	Description	Code

PWB-A DUNTK7000WEW0

MOTHER UNIT

TUNER

NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.

⚠	VTUVTSS6A////	J	Tuner, VHF/UHF	BL

INTEGRATED CIRCUITS

IC210	RH-iX0203GEZZ	J	2 to 4 Decorder	AE
IC501	RH-iX0640CEZZ	J	Vertical Output	AK
⚠IC701	RH-iX1148CEZZ	J	Power Regulator	AX
IC801	VHiTDA3566A-1	J	Video/Chroma	AS
IC1001	RH-iX1561CEN1	J	Microprocessor	BC
IC1002	VHiNM93C46/-1	J		AG
IC1003	RH-iX0037CEZZ	J	Zener IC	AF
IC1006	RH-iX0415CEZZ	J		AK
IC1007	VHiPST529C2-1	J	Reset	AD

TRANSISTORS

Q203	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q205	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q301	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q302	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q304	VS2SD880-G/-1	J	2SD880	AF
Q305	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q601	VS2SC2271E/-1	J	2SC2271(E)	AD
⚠Q602	VS2SD1554//1E	J	2SD1554	AL
⚠Q603	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q604	VS2SD880-G/-1	J	2SD880	AF
⚠Q606	VS2SA1015Y/1E	J	2SA1015(Y)	AC
⚠Q608	VS2SC1815GW-1	J	2SC1815(GW)	AB
⚠Q609	VS2SD880-G/-1	J	2SD880	AF
⚠Q701	VS2SC3279//1E	J	2SC3279	AA
⚠Q702	VS2SC3279N/-1	J	2SC3279(N)	AC
Q1001	VS2SC3399//-1	J	2SC3399	AB
Q1002	VS2SC383-WT-1	J	2SC383(WT)	AE
Q1003	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1004	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1005	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1006	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1008	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1009	VS2SC3402//-1	J	2SC3402	AB
Q1015	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1016	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1017	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1019	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1021	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1042	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1043	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1046	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1047	VS2SA1015Y/1E	J	2SA1015(Y)	AC

Ref. No.	Part No.	★	Description	Code

PWB-A DUNTK7000WEW0
MOTHER UNIT (Continued)

DIODES

D205	VHD1SS119//1E	J	1SS119	AA
D206	RH-EX0341GEZZ	J	Zener Diode, 3V	AA
D207	RH-EX0030GEZZ	J	Zener Diode	AB
D208	VHD1SS119//1E	J	1SS119	AA
D209	VHD1SS119//1E	J	1SS119	AA
D211	RH-DX0027CEZZ	J	SV03YSV	AE
D302	RH-DX0247CEZZ	J		AE
D303	VHD1SS119//1E	J	1SS119	AA
⚠D304	VHD1SS119//1E	J	1SS119	AA
D308	RH-EX0019TAZZ	J	Zener Diode, 12V	AB
D309	VHD1SS119//1E	J	1SS119	AA
D311	RH-EX0142GEZZ	J	Zener Diode, 6.8V	AB
D313	RH-EX0020GEZZ	J	Zener Diode, 4.3V	AE
D315	VHD1SS119//1E	J	1SS119	AA
D380	VHD1SS119//1E	J	1SS119	AA
D401	VHD1SS119//1E	J	1SS119	AA
D501	RH-DX0279CEZZ	J	1N4005	AB
D502	RH-DX0127CEZZ	J	1S5295G	AC
D503	VHD1SS119//1E	J	1SS119	AA
D504	RH-EX0022TAZZ	J	Zener Diode	AB
D505	VHD1SS119//1E	J	1SS119	AA
D506	VHD1SS119//1E	J	1SS119	AA
D603	RH-DX0073CEZZ	J	RH1Z	AD
D604	RH-DX0279CEZZ	J	1N4005	AB
⚠D606	VHD1SS119//1E	J	1SS119	AA
⚠D607	RH-EX0182GEZZ	J	Zener Diode, 22V	AB
D611	VHD1SS119//1E	J	1SS119	AA
D612	VHD1SS119//1E	J	1SS119	AA
D616	VHD1SS119//1E	J	1SS119	AA
D617	RH-EX0341GEZZ	J	Zener Diode, 3V	AA
⚠D618	VHD1SS119//1E	J	1SS119	AA
⚠D619	RH-DX0279CEZZ	J	1N4005	AB
⚠D620	VHD1SS119//1E	J	1SS119	AA
⚠D621	RH-EX0215CEZZ	J	Zener Diode	AB
D622	RH-EX0156GEZZ	J	Zener Diode, 10V	AA
D623	RH-EX0019TAZZ	J	Zener Diode, 12V	AB
D625	VHD1SS119//1E	J	1SS119	AA
⚠D628	VHD1SS119//1E	J	1SS119	AA
D630	VHD1SS119//1E	J	1SS119	AA
D632	RH-DX0127CEZZ	J	1S5295G	AC
D670	RH-DX0302CEZZ	J		AC
⚠D705	RH-DX0027CEZZ	J	SV03YSV	AE
⚠D707	RH-DX0130CEZZ	J	EU-1Z	AE
⚠D708	RH-DX0132CEZZ	J		AC
⚠D709	RH-DX0302CEZZ	J		AC
⚠D710	RH-DX0164CEZZ	J		AC
⚠D711	VHD1SS119//1E	J	1SS119	AA
⚠D712	RH-DX0130CEZZ	J	EU-1Z	AE
⚠D713	RH-DX0130CEZZ	J	EU-1Z	AE
⚠D731	RH-EX0152CEZZ	J	Zener Diode	AE
D732	RH-DX0302CEZZ	J		AC
D733	RH-DX0127CEZZ	J	1S5295G	AC

Ref. No.	Part No.	★	Description	Code

DIODES (Continued)

D804	RH-EX0156GEZZ	J	Zener Diode, 10V	AA
D805	VHD1SS119//1E	J	1SS119	AA
D1002	RH-EX0131CEZZ	J	Zener Diode	AC
D1003	RH-EX0156GEZZ	J	Zener Diode, 10V	AA
D1008	VHD1SS119//1E	J	1SS119	AA
D1009	VHD1SS119//1E	J	1SS119	AA
D1011	VHD1SS119//1E	J	1SS119	AA
D1012	VHD1SS119//1E	J	1SS119	AA
D1014	VHD1SS119//1E	J	1SS119	AA
D1016	VHD1SS119//1E	J	1SS119	AA
D1020	VHD1SS119//1E	J	1SS119	AA
D1029	VHD1SS119//1E	J	1SS119	AA
D1031	VHD1SS119//1E	J	1SS119	AA
D1032	VHD1SS119//1E	J	1SS119	AA
D1034	VHD1SS119//1E	J	1SS119	AA
D1038	VHD1SS119//1E	J	1SS119	AA
D1056	VHD1SS119//1E	J	1SS119	AA
D1057	VHD1SS119//1E	J	1SS119	AA
D1058	VHD1SS119//1E	J	1SS119	AA
D1059	VHD1SS119//1E	J	1SS119	AA
D1062	VHD1SS119//1E	J	1SS119	AA
D1063	VHD1SS119//1E	J	1SS119	AA
D1065	VHD1SS119//1E	J	1SS119	AA
D1066	RH-DX0005GEZZ	J		AA
D1067	VHD1SS119//1E	J	1SS119	AA
D1068	VHD1SS119//1E	J	1SS119	AA
D1069	VHD1SS119//1E	J	1SS119	AA
D1070	RH-DX0005GEZZ	J		AA
D1071	RH-DX0005GEZZ	J		AA
D1072	VHD1SS119//1E	J	1SS119	AA
D1075	VHD1SS119//1E	J	1SS119	AA
D1076	VHD1SS119//1E	J	1SS119	AA
D1078	RH-DX0005GEZZ	J		AA
D1079	RH-DX0005GEZZ	J		AA
D1080	RH-DX0005GEZZ	J		AA
D1081	RH-DX0005GEZZ	J		AA

PACKAGED CIRCUITS

M1001	RMPTC0282CEZZ	J	Resistor Array, 6.8k×4	AC
M1002	RMPTC0282CEZZ	J	Resistor Array, 6.8k×4	AC
M1003	RMPTC0010GEZZ	J	Resistor Array, 22k×4	AB
M1004	RMPTC0067CEZZ	J	Resistor Array, 100k×3	AB
X801	RCRSB0005PEZZ	R	Crystal, 8.8MHz	AL

CERAMIC FILTER

CF1001	RFiLC0091GEZZ	J		AD

DELAY LINES

DL401	RCiLZ0774CEZZ	J	Delay Line, Video (1H)	AK
DL801	RCiLZ0475CEZZ	J	Delay Line, PAL (1H)	AP

Ref. No.	Part No.	★	Description	Code

PWB-A DUNTK7000WEW0
MOTHER UNIT (Continued)

COILS

L211	VP-DF120K0000	J	12µH	AB
L304	VP-CF3R3K0000	J	3.3µH	AB
L305	VP-CF3R3K0000	J	3.3µH	AB
L501	VP-CF3R3K0000	J	3.3µH	AB
L601	RCiLZ0007PEZZ	R	Linearity Coil	AK
L602	RCiLP0088CEZZ	J	3.3mH	AG
L603	VP-CF100K0000	J	10µH	AB
L609	VP-CF1R0M0000	J	1µH	AB
L610	VP-CF3R3K0000	J	3.3µH	AB
L670	VP-CF3R3K0000	J	3.3µH	AB
L671	VP-CF3R3K0000	J	3.3µH	AB
⚠L705	VP-DF8R2K0000	J	8.2µH	AB
⚠L706	VP-CF271K0000	J	270µH	AB
⚠L707	RCiLP0050CEZZ	J	150µH	AE
L731	VP-CF3R3K0000	J	3.3µH	AB
L732	VP-CF3R3K0000	J	3.3µH	AB
L801	VP-DF100K0000	J	10µH	AB
L802	VP-DF6R8K0000	J	6.8µH	AB
L803	VP-DF6R8K0000	J	6.8µH	AB
L804	VP-DF8R2K0000	J	8.2µH	AB
L805	VP-DF6R8K0000	J	6.8µH	AB
L1001	VP-DF101K0000	J	100µH	AB
L1002	VP-DF120K0000	J	12µH	AB

TRANSFORMERS

T601	RTRNZ0026PEZZ	R	Horizontal Drive Trans.	AH
⚠T602	RTRNF0051PEZZ	R	Flyback Trans.	BN
⚠T701	RTRNZ0028PEZZ	R	Power Regulator	BC
T801	RCiLZ0439CEZZ	J	1H Phase	AD
T1001	RCiLB0002PEZZ	R	On Screen Display	AG

CONTROLS

R248	RVR-B0009PEZZ	R	50k(B)	RF-AGC	AD
R420	RVR-B5265CEZZ	J	10k(B)	Sub-Contrast	AB
R507	RVR-B0006PEZZ	R	5k(B)	Vertical Line.	AE
R509	RVR-B0002PEZZ	R	200(B)	Vertical Size	AD
R613	RVR-B0011PEZZ	R	200k(B)	Horiz. Center	AC
R806	RVR-B5261CEZZ	J	1k(B)	Gain	AB

CAPACITORS

C311	VCKYPA2HB102K	J	0.001	500V	Ceramic	AA
C312	VCEAGA1EW477M	J	470	25V	Electrolytic	AD
C313	RC-KZ0056CEZZ	J	0.1	16V	Ceramic	AB
C504	VCCSPA2HL121K	J	120p	500V	Ceramic	AA
C506	VCEAGA1EW108M	J	1000	25V	Electrolytic	AD
C507	VCEAGA1EW227M	J	220	25V	Electrolytic	AC
C508	VCSATA1VE225K	J	2.2	35V	Tantalum	AC
C510	VCEAGA1VW477M	J	470	35V	Electrolytic	AD
C511	VCKYPA2HB102K	J	0.001	500V	Ceramic	AA

Ref. No.	Part No.	★	Description	Code

CAPACITORS (Continued)

C610	VCFYSB2EB823J	J	0.082	25V	Metallized Polyester	AD
C611	VCKYPA2HB102K	J	0.001	500V	Ceramic	AA
C612	RC-KZ0024CEZZ	J	1000p	2kV	Ceramic	AC
C613	VCFPPD2DB564J	J	0.56	200V	Metallized Polyester	AF
C614	VCQPSC2DA104J	J	0.1	200V	Polypro Film	AC
C615	VCQPSD2DA224J	J	0.22	200V	Polypro Film	AD
C616	VCFPPD3CA822J	J	0.0082	1.6kV	Metallized Polyester	AF
C617	VCQYSH2DM104K	J	0.1	200V	Mylar	AD
C619	VCEAGA2AW106M	J	10	100V	Electrolytic	AC
⚠C620	VCEAAA1EW475M	J	4.7	25V	Electrolytic	AB
⚠C621	VCEAGA0JW337M	J	330	6.3V	Electrolytic	AB
⚠C622	VCEAGA1CW476M	J	47	16V	Electrolytic	AB
C628	VCKYPA2HB221K	J	220p	500V	Ceramic	AA
C631	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
⚠C635	VCEAGA1CW476M	J	47	16V	Electrolytic	AB
C636	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
C637	VCKYPA2HB102K	J	0.001	500V	Ceramic	AA
C638	VCEAGA1HW477M	J	470	50V	Electrolytic	AD
C664	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
C670	VCKYPA2HB102K	J	0.001	500V	Ceramic	AA
C671	VCEAGA1EW337M	J	330	25V	Electrolytic	AC
⚠C707	RC-EZ0055CEZZ	J	150	400V	Electrolytic	AN
⚠C709	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
⚠C710	VCQPSC2JA333K	J	0.033	630V	Polypro Film	AB
⚠C711	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
⚠C712	VCKYPA2HB152K	J	0.0015	500V	Ceramic	AA
⚠C713	VCKYPA1HF103Z	J	0.01	50V	Ceramic	AA
⚠C714	VCEAGA2AW106M	J	10	100V	Electrolytic	AC
⚠C715	VCQYSH1HM123J	J	0.012	50V	Mylar	AB
⚠C716	VCEAAA1JN476M	J	47	63V	Electrolytic	AC
⚠C717	RC-KZ0029CEZZ	J	0.01	AC250V	Ceramic	AC
⚠C718	VCKYPA2HB561K	J	560p	500V	Ceramic	AA
⚠C721	VCKYPH3DB561K	J	560p	2kV	Ceramic	AC
⚠C722	VCKYPA1HB561K	J	560p	50V	Ceramic	AA
⚠C723	VCE9AA1HW335M	J	3.3	50V	Electrolytic (N.P)	AE
⚠C724	VCQYSH1HM562K	J	0.0056	50V	Mylar	AB
⚠C725	VCCSPA1HL820J	J	82p	50V	Ceramic	AA
⚠C726	RC-KZ0033CEZZ	J	150p	2kV	Ceramic	AB
⚠C730	RC-KZ0155CEZZ	J	680p	4kV	Ceramic	AE
C731	VCEAAH2CW107M	J	100	160	Electrolytic	AE
C732	RC-KZ0024CEZZ	J	1000p	2kV	Ceramic	AC
C733	VCKYPA2HB102K	J	0.001	500V	Ceramic	AA
C734	VCEAGA1EW477M	J	470	25V	Electrolytic	AD
C806	VCSATA1CE156K	J	15	16V	Tantalum	AD
C808	VCEAGA1CW337M	J	330	16V	Electrolytic	AC
C1014	VCEAGA0JW108M	J	1000	6.3V	Electrolytic	AC
C1042	VCEAGA1AW227M	J	220	10V	Electrolytic	AB
C1044	VCE9AA1HW105M	J	1	50V	Electrolytic (N.P)	AB
C1048	VCEAGA0JW337M	J	330	6.3V	Electrolytic	AB
C1060	VCEAGA1AW227M	J	220	10V	Electrolytic	AB

PWB-A DUNTK7000WEW0
MOTHER UNIT (Continued)

RESISTORS

Ref. No.	Part No.	★	Description	Code
R312	VRS-SV3DB120J	J	12 2W Metal Oxide	AA
⚠R313	RR-XZ0010CEZZ	J	1.5 1W Fuse Resistor	AB
R315	VRS-SV3LB822J	J	8.2k 3W Metal Oxide	AB
⚠R318	VRD-MN2BE682J	J	6.8k 1/8W Carbon (Chip)	AA
⚠R319	VRD-MN2BE104J	J	100k 1/8W Carbon (Chip)	AA
R345	VRS-SV3DB120J	J	12 2W Metal Oxide	AA
⚠R515	RR-XZ0035TAZZ	J	22 1/4W Fuse Resistor	AB
⚠R521	RR-XZ0029CEZZ	J	3.3 1/2W Fuse Resistor	AB
R609	VRS-SV3LB392J	J	3.9k 3W Metal Oxide	AC
R611	VRW-KV4AC6R8K	J	6.8 10W Cement	AD
⚠R612	RR-XZ0020CEZZ	J	39 1/4W Fuse Resistor	AB
R618	VRS-SU2HB102J	J	1k 1/2W Metal Oxide	AA
⚠R620	RR-XZ0035TAZZ	J	22 1/4W Fuse Resistor	AB
R621	VRN-RV3DB1R5J	J	1.5 2W Metal Film	AB
⚠R623	VRD-RA2EE684J	J	680k 1/4W Carbon	AA
⚠R624	VRD-MN2BE274J	J	270k 1/8W Carbon (Chip)	AA
⚠R628	VRD-MN2BE223J	J	22k 1/8W Carbon (Chip)	AA
⚠R629	VRD-MN2BE123J	J	12k 1/8W Carbon (Chip)	AA
⚠R630	VRD-MN2BE472J	J	4.7k 1/8W Carbon (Chip)	AA
⚠R634	VRD-RM2HD101J	J	100 1/2W Carbon	AA
⚠R635	VRD-MN2BE223J	J	22k 1/8W Carbon (Chip)	AA
⚠R637	VRD-MN2BE472J	J	4.7k 1/8W Carbon (Chip)	AA
R643	VRS-VV3AB121J	J	120 1W Metal Oxide	AA
⚠R648	VRD-RM2HD1R8J	J	1.8 1/2W Carbon	AA
⚠R649	VRD-MN2BE472J	J	4.7k 1/8W Carbon (Chip)	AA
R652	VRS-VV3AB330J	J	33 1W Metal Oxide	AA
⚠R662	RR-XZ0086CEZZ	J	1.5 1/2W Fuse resistor	AB
R665	VRS-VV3AB331J	J	330 1W Metal Oxide	AA
⚠R670	RR-XZ0029CEZZ	J	3.3 1/2W Fuse Resistor	AB
⚠R702	VRS-SV3LB124J	J	120k 3W Metal Oxide	AC
⚠R704	RR-XZ0011GEZZ	J	47 1/2W Fuse Resistor	AB
⚠R705	VRD-RM2HD1R8J	J	1.8 1/2W Carbon	AA
⚠R706	VRD-RM2HD2R2J	J	2.2 1/2W Carbon	AA
⚠R707	VRD-RM2HD2R2J	J	2.2 1/2W Carbon	AA
⚠R709	VRS-VV3DB272J	J	2.7k 2W Metal Oxide	AA
⚠R710	RR-XZ0017CEZZ	J	10 1/2W Fuse Resistor	AB
⚠R711	VRD-RM2HD683J	J	68k 1/2W Carbon	AA
⚠R712	VRD-RM2HD683J	J	68k 1/2W Carbon	AA
⚠R713	VRS-VV3AB331J	J	330 1W Metal Oxide	AA
⚠R714	VRD-RM2HD393J	J	39k 1/2W Carbon	AA
⚠R715	VRD-RM2HD330J	J	33 1/2W Carbon	AA
⚠R716	VRD-RM2HD181J	J	180 1/2W Carbon	AA
⚠R718	VRD-RM2HD470J	J	47 1/2W Carbon	AA
⚠R719	VRC-UA2HG825K	J	8.2M 1/2W Solid	AA
⚠R720	VRC-UA2HG825K	J	8.2M 1/2W Solid	AA
⚠R725	VRD-RA2EE153J	J	15k 1/4W Carbon	AA
⚠R726	VRD-RA2EE391J	J	390 1/4W Carbon	AA
⚠R727	VRD-RA2EE561G	J	560 1/4W Carbon	AA
⚠R728	VRD-RA2BE102J	J	1k 1/8W Carbon	AA
⚠R729	VRD-RA2EE3R3J	J	3.3 1/4W Carbon	AA
⚠R731	RR-XZ0027CEZZ	J	2.2 1/2W Fuse Resistor	AB
R736	VRS-SV3LB123J	J	12k 3W Metal Oxide	AB

RESISTORS (Continued)

Ref. No.	Part No.	★	Description	Code
R1032	VRS-VV3DB123J	J	12k 2W Metal Oxide	AA

SWITCHES

Ref. No.	Part No.	★	Description	Code
S501	QSW-B0015CEZZ	J	Vertical Center	AC
⚠S1001	QSW-K0068CEZZ	J	Power	AB
⚠S1002	QSW-K0068CEZZ	J	Channel (+)	AB
⚠S1003	QSW-K0068CEZZ	J	Channel (−)	AB
⚠S1004	QSW-K0068CEZZ	J	Volume (+)	AB
⚠S1005	QSW-K0068CEZZ	J	Volume (−)	AB
⚠S1006	QSW-K0068CEZZ	J	P-Mode	AB
⚠S1007	QSW-K0068CEZZ	J	Pre-set	AB
⚠S1008	QSW-K0068CEZZ	J	Fine	AB
⚠S1009	QSW-K0068CEZZ	J	Skip/Call	AB
⚠S1010	QSW-K0040CEZZ	J	Blue Back	AB
⚠S1013	QSW-K0040CEZZ	J	Power	AB

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
FB602	RBLN-0010CEZZ	J	Ferrite Bead	AC
⚠FB702	RBLN-0037CEZZ	J	Ferrite Bead	AB
⚠FB703	RBLN-0037CEZZ	J	Ferrite Bead	AB
⚠FB704	RBLN-0010CEZZ	J	Ferrite Bead	AC
FB731	RBLN-0037CEZZ	J	Ferrite Bead	AB

— End of PWB-A —

Ref. No.	Part No.	★	Description	Code

PWB-B DUNTK7001WEV8
CRT SOCKET UNIT

TRANSISTORS

Q851	VS2SC2611/-1E	J	2SC2611, Red Output	AE
Q852	VS2SC2611/-1E	J	2SC2611, Green Output	AE
Q853	VS2SC2611/-1E	J	2SC2611, Blue Output	AE
Q854	VS2SA1015Y/1E	J	2SA1015, Constant Volt.	AC

COIL

L851	VP-CF681K0000	J	680µH	AB

CONTROLS

R853	RVR-B4568CEZZ	J	10k(B) Red Bias	AC
R857	RVR-B4561CEZZ	J	200(B) Green Drive	AC
R859	RVR-B4568CEZZ	J	10k(B) Green Bias	AC
R863	RVR-B4561CEZZ	J	200(B) Blue Drive	AC
R865	RVR-B4568CEZZ	J	10k(B) Blue Bias	AC

CAPACITORS

C854	RC-KZ0150CEZZ	J	1000p 3kV Ceramic	AB
C866	VCEAAA2DW106M	J	10 200V Electrolytic	AC

RESISTORS

R855	VRD-RM2HD272J	J	2.7k 1/2W Carbon	AA
R860	VRS-VV3DB123J	J	12k 2W Metal Oxide	AA
R861	VRD-RM2HD272J	J	2.7k 1/2W Carbon	AA
R866	VRS-VV3DB123J	J	12k 2W Metal Oxide	AA
R867	VRD-RM2HD272J	J	2.7k 1/2W Carbon	AA
R868	VRS-VV3DB123J	J	12k 2W Metal Oxide	AA

MISCELLANEOUS PART

⚠SC851	QSOCV0913CEZZ	J	CRT Socket	AK

— End of PWB-B —

PWB-C DUNTK6852WEX6
IF UNIT

INTEGRATED CIRCUIT

IC201	VHiTDA8305A-1	J	PIF/SIF/Vert./Horiz.	AZ

TRANSISTORS

Q201	VS2SC1906//1E	J	2SC1906	AC
Q202	VS2SC1815GW-1	J	2SC1815 (GW)	AB

COILS

L203	VP-DFR33M0000	J	0.33µH	AB
L204	VP-XF120K0000	J	12µH	AB
L205	VP-DF2R2K0000	J	2.2µH	AB

CERAMIC FILTERS

CF201	RFiLC0020CEZZ	J	5.5MHz Trap	AE
SF201	RFiLC0112CEZZ	J	Suaface Accoustic Wave Filter	AN

TRANSFORMERS

T203	RCiLi0431CEZZ	J	IF Coil	AF
T205	RCiLD0143CEZZ	J	AFT P-Det. Coil	AF

CONTROL

R604	RVR-B5265CEZZ	J	10k(B) Horizontal Freq.	AB

CAPACITORS

C206	VCEAGU1CW477M	J	470 16 Electrolytic	AC
C207	VCSATA1VE224K	J	0.22 35V Tantalum	AC
C208	VCSATA1VE105K	J	1 35V Tantalum	AD
C215	VCSATA1VE105K	J	1 35V Tantalum	AD
C222	VCEAGU1CW337M	J	330 16V Electrolytic	AC
C602	VCQPSA2AA152G	J	0.0015 100V Mylar	AD

— End of PWB-C —

Ref. No.	Part No.	★	Description	Code

PWB-D DUNTK6999WEV8
POWER UNIT

DIODES

⚠D771	RH-DX0055TAZZ	J		AD
⚠D772	RH-DX0055TAZZ	J		AD
⚠D773	RH-DX0055TAZZ	J		AD
⚠D774	RH-DX0055TAZZ	J		AD

PACKAGED CIRCUIT

⚠PR771	RMPTP0061CEZZ	J	Positive Coefficient Thermistor	AV

COILS

⚠L771	RCiLF0007PEZZ	R	Line Filter	AL
⚠L772	RCiLF0105CEZZ	J	Line Filter	AP
⚠L773	RCiLP0070CEZZ	J	Peaking Coil	AD
⚠L774	RCiLP0070CEZZ	J	Peaking Coil	AD

CAPACITORS

⚠C771	RC-FZ0091CEZZ	J	0.22 AC250V Metallized Polyester	AE
⚠C772	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC
⚠C773	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC
⚠C774	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC
⚠C775	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC
⚠C776	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC
⚠C778	RC-KZ0029CEZZ	J	0.01 AC250V Ceramic	AC

RESISTOR

⚠R771	VRW-KV3NC6R8K	J	6.8 7W Cement	AC

MISCELLANEOUS PARTS

⚠FB771	RBLN-0010CEZZ	J	Ferrite Bead	AC

— End of PWB-D —

PWB-E DUNTK6998WEV0
R/C RECEIVER UNIT

DIODE

D1001	RH-PX0077CEZZ	J	LED, Red/Green	AE

MISCELLANEOUS PART

RR1001	RRMCU0190CEZZ	J	Remote Control Receiver	AL

— End of PWB-E —

PWB-F —— *Not used* ——

PWB-G DUNTK7002WEV9
A/V UNIT (Continued)

INTEGRATED CIRCUITS

Ref. No.	Part No.	★	Description	Code
IC1301	RH-iX0214CEZZ	J		AP
IC1302	VHiTDA2007/-1	J		AH
IC1303	RH-iX0257CEZZ	J		AF
IC1401	VHiTA7750P/-1	J		AM

TRANSISTORS

Ref. No.	Part No.	★	Description	Code
Q1302	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1303	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1304	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1307	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1308	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1401	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1402	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1403	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1404	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q1405	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1406	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q1407	VS2SC1815GW-1	J	2SC1815(GW)	AB

DIODES

Ref. No.	Part No.	★	Description	Code
D1303	VHD1SS119//1E	J	1SS119	AA
D1304	VHD1SS119//1E	J	1SS119	AA
D1305	VHD1SS119//1E	J	1SS119	AA
D1306	RH-EX0019TAZZ	J	Zener Diode	AB
D1307	RH-EX0019TAZZ	J	Zener Diode	AB
D1308	RH-EX0019TAZZ	J	Zener Diode	AB
D1309	RH-EX0019TAZZ	J	Zener Diode	AB
D1311	VHD1SS119//1E	J	1SS119	AA
D1313	VHD1SS119//1E	J	1SS119	AA
D1314	VHD1SS119//1E	J	1SS119	AA
D1315	VHD1SS119//1E	J	1SS119	AA
D1316	VHD1SS119//1E	J	1SS119	AA
D1401	VHD1SS119//1E	J	1SS119	AA
D1402	RH-EX0019TAZZ	J	Zener Diode	AB

COILS

Ref. No.	Part No.	★	Description	Code
L1301	VP-CF3R3K0000	J	3.3µH	AB
L1302	VP-CF3R3K0000	J	3.3µH	AB
L1303	VP-CF3R3K0000	J	3.3µH	AB
L1304	VP-CF3R3K0000	J	3.3µH	AB
L1401	VP-DF470K0000	J	47µH	AB
L1404	VP-DF220K0000	J	22µH	AB

CAPACITORS

Ref. No.	Part No.	★			Description	Code
C1306	VCEAGA1CW108M	J	1000	16V	Electrolytic	AD
C1309	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
C1320	VCEAGA1EW107M	J	100	25V	Electrolytic	AD
C1321	VCEAGA1CW227M	J	220	16V	Electrolytic	AC
C1322	VCEAGA1CW227M	J	220	16V	Electrolytic	AC
C1325	VCEAGA1EW337M	J	330	25V	Electrolytic	AC
C1326	VCEAGA1EW337M	J	330	25V	Electrolytic	AC
C1328	VCEAGA1EW108M	J	1000	25V	Electrolytic	AD
C1401	VCEAGA0JW477M	J	470	6.3V	Electrolytic	AB
C1405	VCEAGA1CW337M	J	330	16V	Electrolytic	AC
C1406	VCE9AA1CW106M	J	10	16V	Electrolytic (N.P)	AB
C1412	VCEAGA0JW477M	J	470	6.3V	Electrolytic	AB
C1411	VCEAGA1CW227M	J	220	16V	Electrolytic	AC
C1416	VCEAGA1CW227M	J	220	16V	Electrolytic	AC
C1417	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
C1420	VCEAGA1CW337M	J	330	16V	Electrolytic	AC

RESISTORS

Ref. No.	Part No.	★		Description	Code
⚠R1305	RR-XZ0035TAZZ	J	22	1/4W Fuse Resistor	AB
⚠R1360	RR-XZ0035TAZZ	J	22	1/4W Fuse Resistor	AB
⚠R1407	RR-XZ0035TAZZ	J	22	1/4W Fuse Resistor	AB
⚠R1428	RR-XZ0035TAZZ	J	22	1/4W Fuse Resistor	AB
⚠R1429	RR-XZ0035TAZZ	J	22	1/4W Fuse Resistor	AB
⚠R1430	RR-XZ0035TAZZ	J	22	1/4W Fuse Resistor	AB

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠J1401	QTANJ0617CEZZ	J	Jack, A/V Input/Output	AH

—— End of PWB-G ——

PWB-H DUNTK7057WEV5
AC SWITCH UNIT

SWITCH

Ref. No.	Part No.	★	Description	Code
⚠S771	QSW-P0418CEZZ	J	AC Switch	AF

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
⚠F771	QFS-C2024CEZZ	J	Fuse, T2A	AD
FH771	QFSHD1002CEZZ	J	Fuse Holder	AA
FH772	QFSHD1002CEZZ	J	Fuse Holder	AA
	JBTN-0057PESA	R	Button, AC Switch	AF

—— End of PWB-H ——

PWB-I —— *Not used* ——

PWB-J DUNTK6452WEB1
MPX SOUND UNIT

INTEGRATED CIRCUITS

Ref. No.	Part No.	★	Description	Code
IC351	RH-iX0028PAZZ	J		AQ
IC352	VHiiR3P72//-1	J		AM

TRANSISTOR

Ref. No.	Part No.	★	Description	Code
Q351	VS2SC1906//1E	J	2SC1906, Pre-Amp.	AC

CERAMIC FILTERS

Ref. No.	Part No.	★	Description	Code
CF351	RFiLC0063CEZZ	J	Ceramic Filter, 5.74MHz	AG
CF352	RFiLC0061CEZZ	J	Ceramic Filter, 5.5MHz	AF
SF351	RFiLC0207CEZZ	J	Surface Accoustic Wave Filter	AP

COILS

Ref. No.	Part No.	★	Description	Code
L353	VP-XF120K0000	J	12µH	AB
L355	VP-XF1R0M0000	J	1µH	AB
L356	VP-XF120K0000	J	12µH	AB
L357	VP-XF150K0000	J	15µH	AB
L358	VP-DF120K0000	J	12µH	AB

TRANSFORMERS

Ref. No.	Part No.	★	Description	Code
T351	RCiLi0535CEZZ	J	IF Trans.	AC
T352	RCiLD0176CEZZ	J	36.875MHz Detector	AD
T353	RCiLD0196CEZZ	J	5.5MHz Detector	AE
T354	RCiLD0197CEZZ	J	5.74MHz Detector	AE

CONTROLS

Ref. No.	Part No.	★			Description	Code
R372	RVR-B5266CEZZ	J	20k(B)		Level	AB
R374	RVR-B5266CEZZ	J	20k(B)		Separation	AB
R378	RVR-B5265CEZZ	J	10k(B)		Pilot Level	AB
R379	RVR-B5265CEZZ	J	10k(B)		Mono/Mono Cancel	AB
R383	RVR-B5265CEZZ	J	10k(B)		Pilot Amp.	AB
R387	RVR-B5265CEZZ	J	10k(B)		Stereo	AB
R391	RVR-B5265CEZZ	J	10k(B)		Bilingual	AB
R394	RVR-B5269CEZZ	J	100k(B)		PLL	AB

CAPACITORS

Ref. No.	Part No.	★				Description	Code
C363	VCEAGU1CW477M	J	470	16V		Electrolytic	AC
C376	VCEAGA1CW107M	J	100	16V		Electrolytic	AB
C382	VCEAGU1CW477M	J	470	16V		Electrolytic	AC

—— End of PWB-J ——

MISCELLANEOUS PARTS

Ref. No.	Part No.	★	Description	Code
SP1	VSP9050PB278A	R	Speaker, 9×5 cm	AW
SP2	VSP9050PB278A	R	Speaker, 9×5 cm	AW
⚠	QACCL3001PEZZ	R	AC Cord	AQ

PACKING PARTS
(*NOT REPLACEMENT ITEM*)

Part No.		Description	
SPAKC4222CEZZ	–	Packing Case	—
SPAKP0640CEZZ	–	Polystyrene Mat	—
SPAKX2262CEZZ	–	Buffer Material	—

SUPPLIED ACCESSORIES

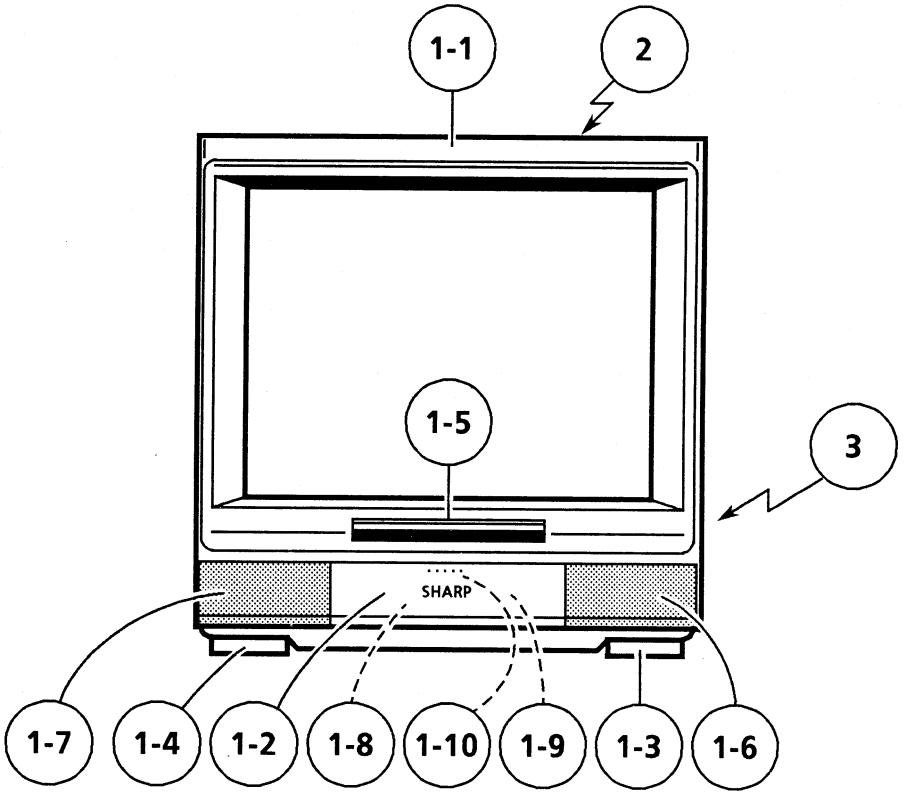
ACCESSORIES

Part No.		Description	Code
RRMCG0824PESA	R	Infrared Remote Controller	BC

ACCESSORIES (*NOT REPLACEMENT ITEM*)

Part No.		Description	
TiNS-4676CEZZ	–	Operation Manual	—
TMAN-3721CEZZ	–	Service Information	—
UBATU1032CCN1	–	Dry Batteries, Size AAA (2 pcs)	—

CABINET PARTS LOCATION



CABINET PARTS

Ref. No.	Part No.	★	Description	Code
1	CCABA2121ZE01	R	Cabinet Ass'y, Front (W/ Speaker x 2 pcs)	BP
1-1	*Not Available*	–	Cabinet, Front	—
1-2	GDORF0123PESA	R	Door	AL
1-3	GLEGP9005PESA	R	Insulator (Right)	AG
1-4	GLEGP9006PESA	R	Insulator (Left)	AG
1-5	GMADT0068PESA	R	Window	AH
1-6	HDECA0006PESB	R	Speaker Decoration (R)	AF
1-7	HDECA0007PESB	R	Speaker Decoration (L)	AF
1-8	HiNDP0106PEZZ	R	Indication Plate, Door	AE
1-9	HiNDP0132PESA	R	Indication Sheet, Door	AF
1-10	PKAi-0001PE00	R	Push Latch	AF

Ref. No.	Part No.	★	Description	Code
2	GCABB2118PEKA	R	Cabinet, Rear	BP
3	JBTN-0057PESA	R	Button, AC Switch	AF

SX-51A7

SHARP

SHARP SERVICE MANUAL

S71G5AN222TX/

TELETEXT UNIT for COLOUR TELEVISION

MODEL AN-222TX

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

CONTENTS

Page

- HOW TO BUILD IN TELETEXT UNIT TO TV SET (SX-51A7)
  - Step 1. Partial modifications on the PWB 2
  - Step 2. Inserting the TELETEXT unit 2
  - Step 3. Coupling the TELETEXT connectors (DB), (BB), (OV) and (OD) 3
  - Step 4. Leads Arrangement 3
- CHASSIS LAYOUT 4
- PRINTED WIRING BOARD ASSEMBLIES 4
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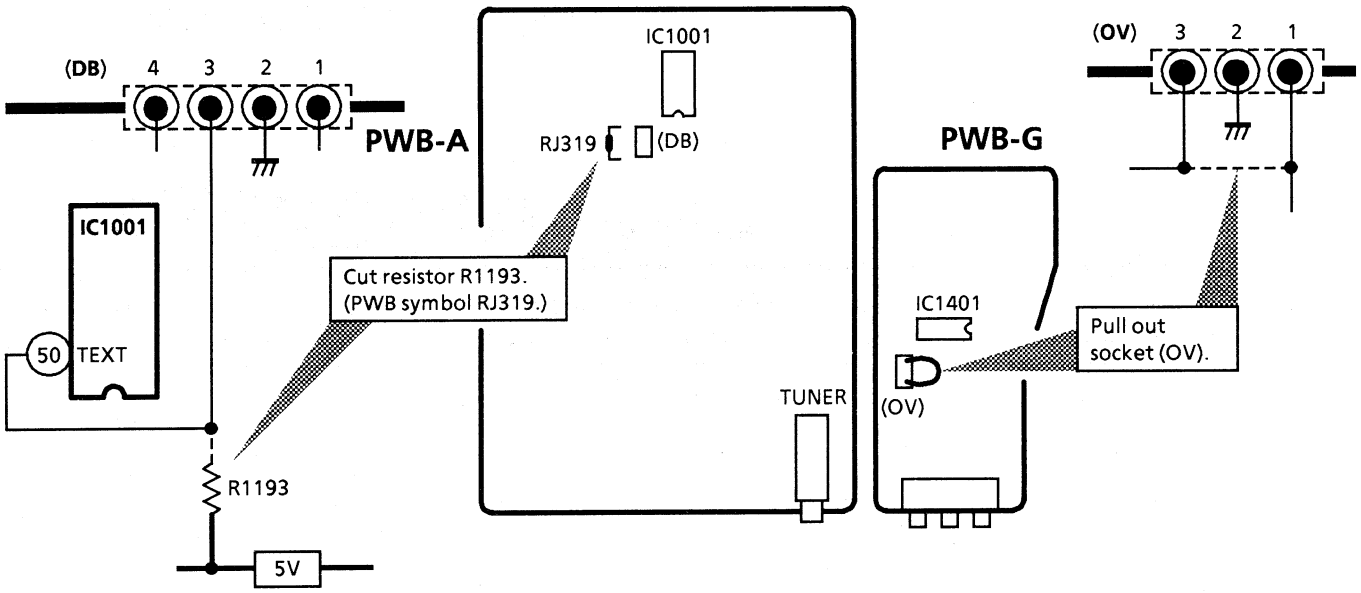
SHARP CORPORATION

HOW TO BUILD IN TELETEXT UNIT TO TV SET (SX-51A7)

Step 1. Partial modifications on the PWB.

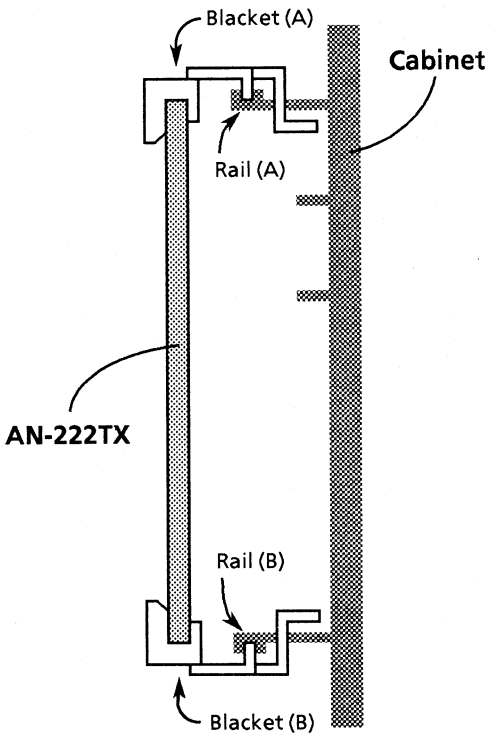
Cut off the following parts to make open the respective circuits.

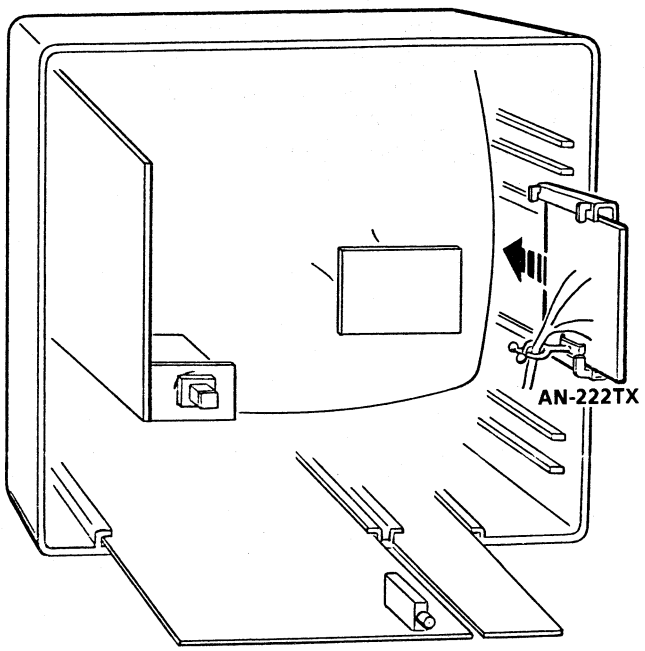
1. Cut resistor R1193* in PWB-A.
   * PWB symbol: RJ319.
2. Pull out socket (OV) in PWB-G.



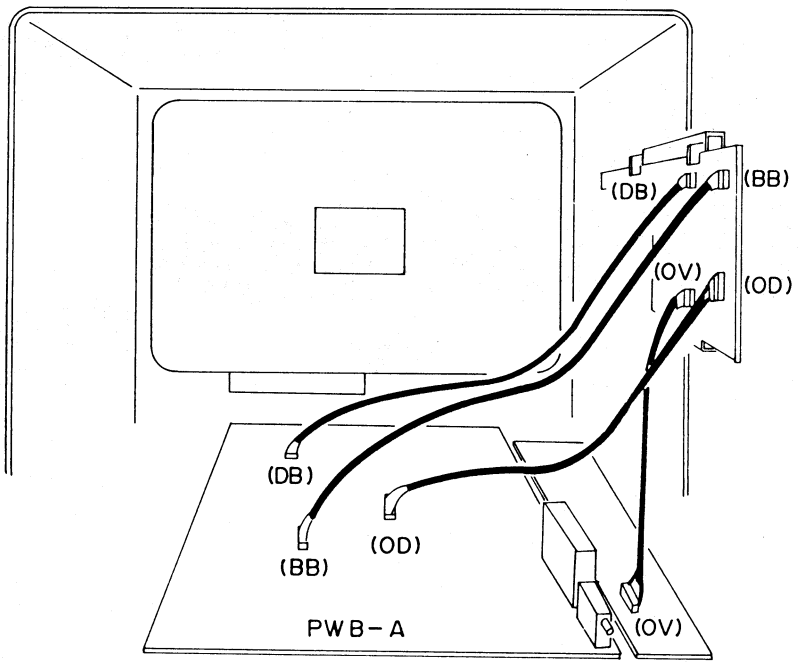
Step 2. Inserting the TELETEXT unit

Insert the unit with the brackets (A) and (B) running along the rails (A) and (B).





Step 3. Coupling the TELETEXT connectors (DB), (BB), (OV) and (OD).

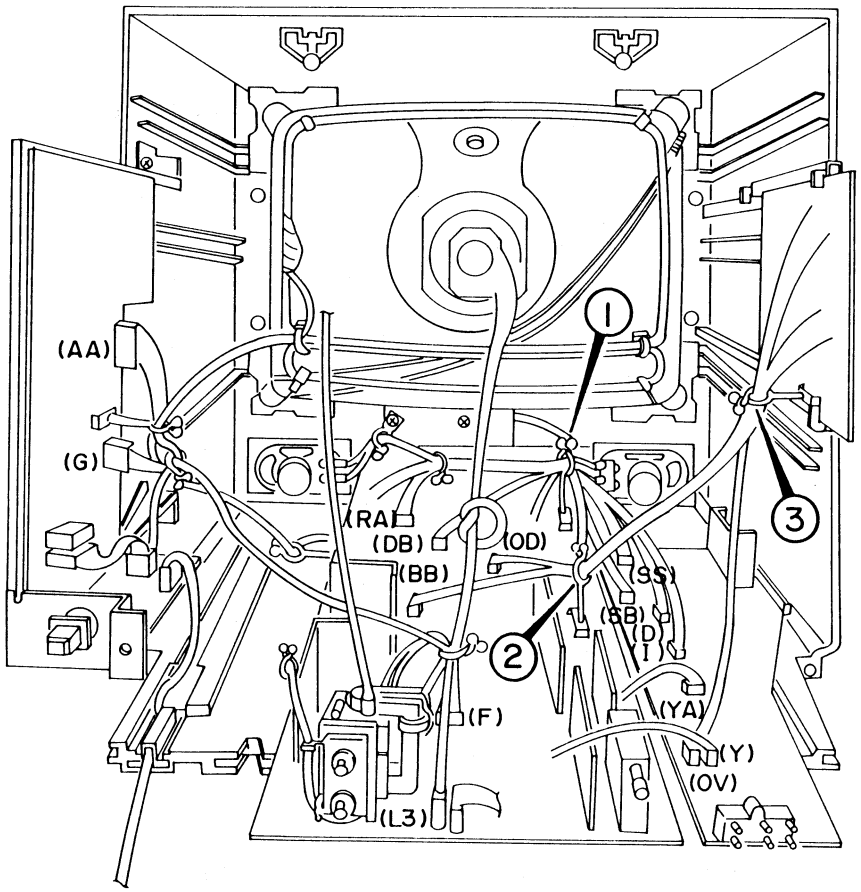


Step 4. Leads Arrangement.

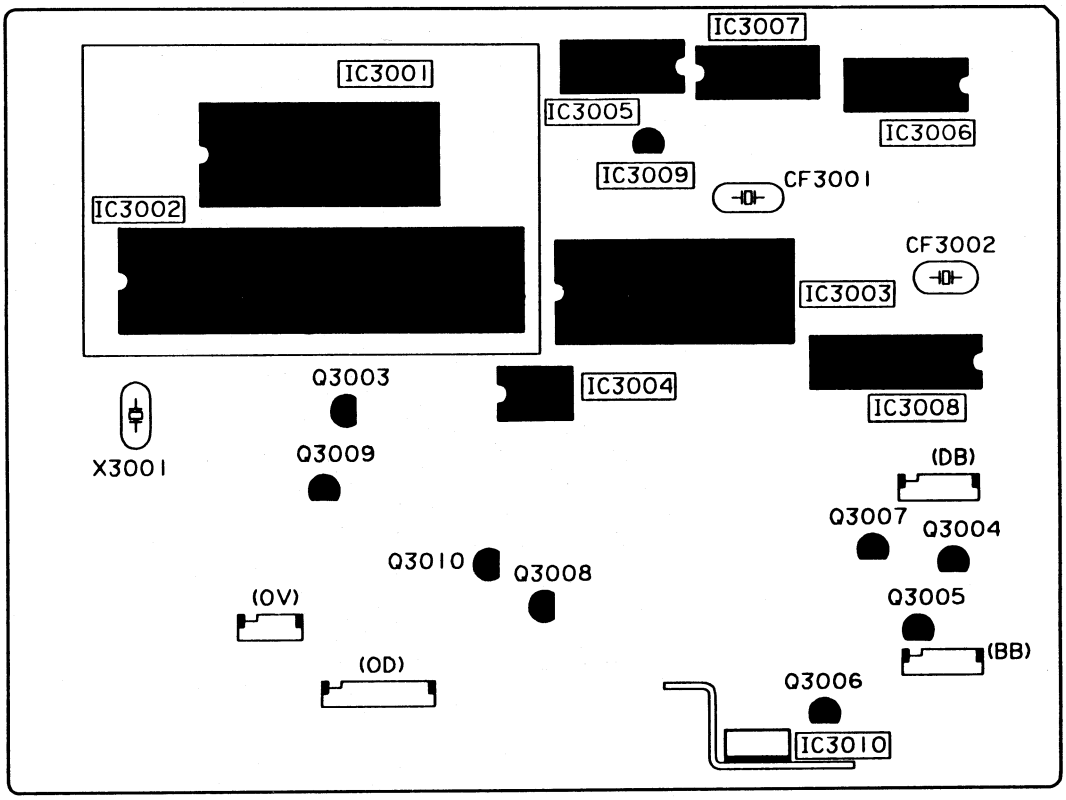
1. Bundle the (DB), (SS), (SB), (D), (I) and (RA) wires with the wire holder ①.
   The wire holder ① is shipped together with the TELETEXT unit.
   Note: Keep the SO (DB) wire away from R312.

2. Bundle the (DB), (BB) and (OD) wires with the wire holder ②.

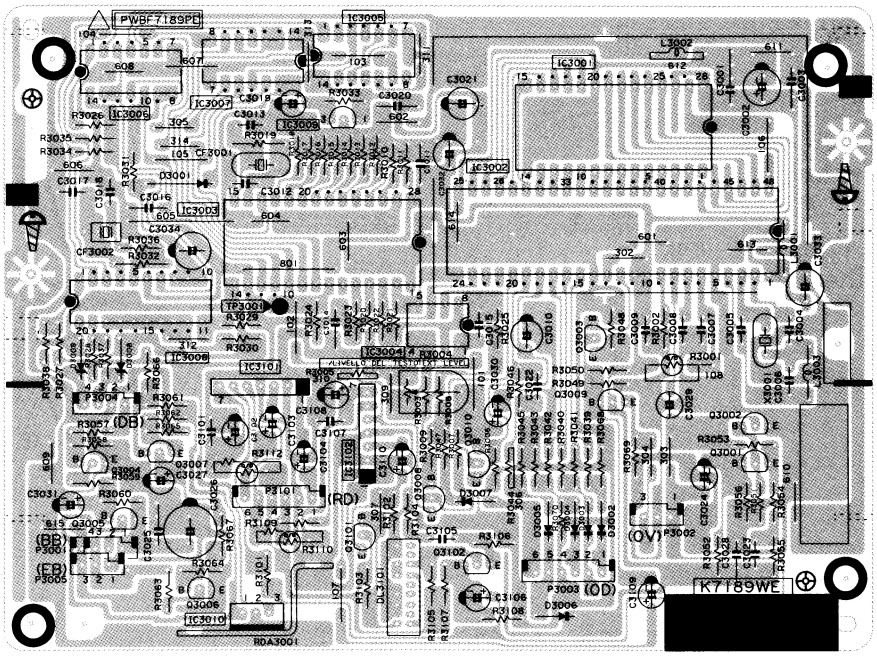
3. Bundle the (DB), (BB), (OV) and (OD) wires with the wire holder ③.



CHASSIS LAYOUT

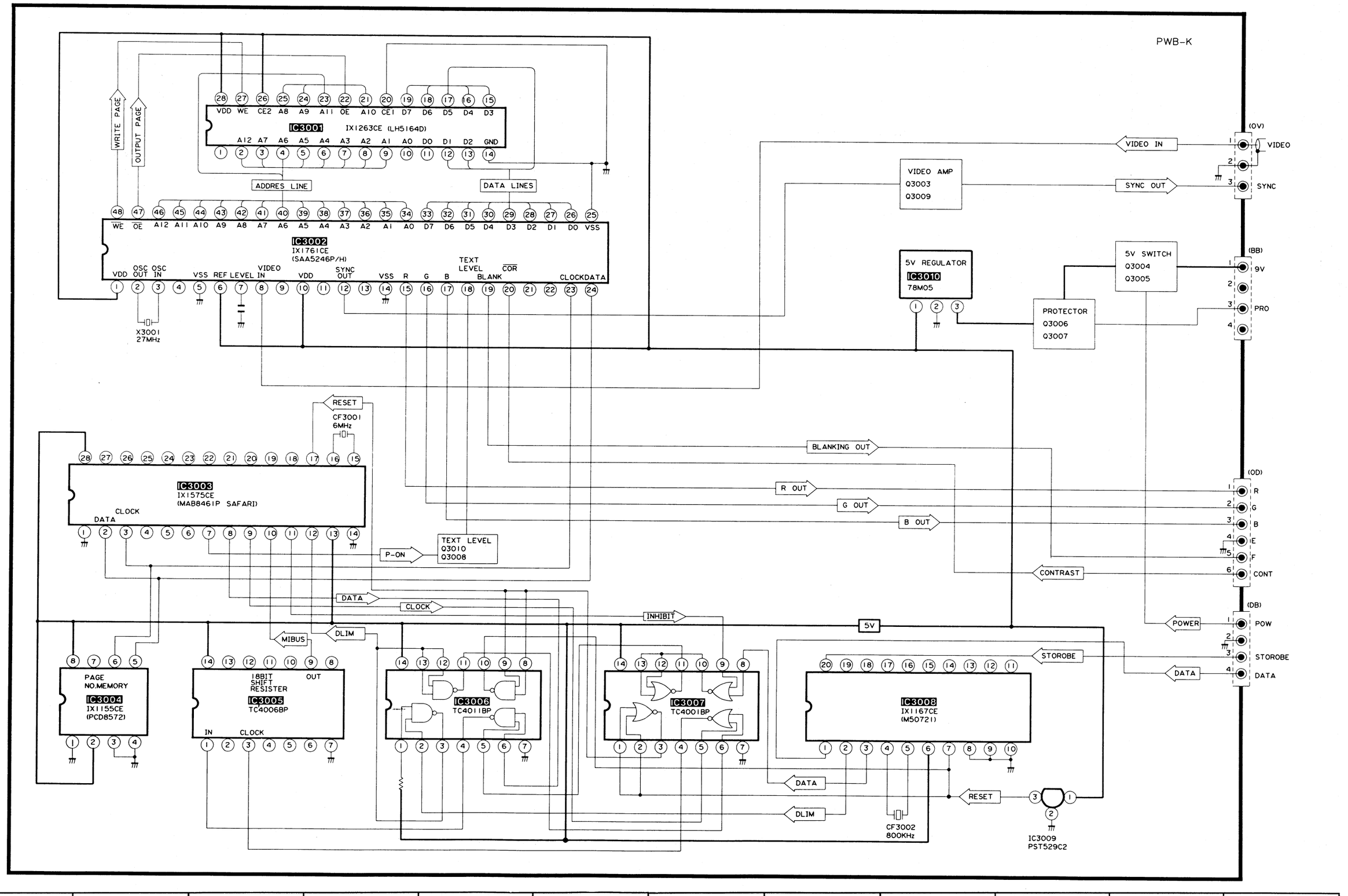


PRINTED WIRING BOARD ASSEMBLIES

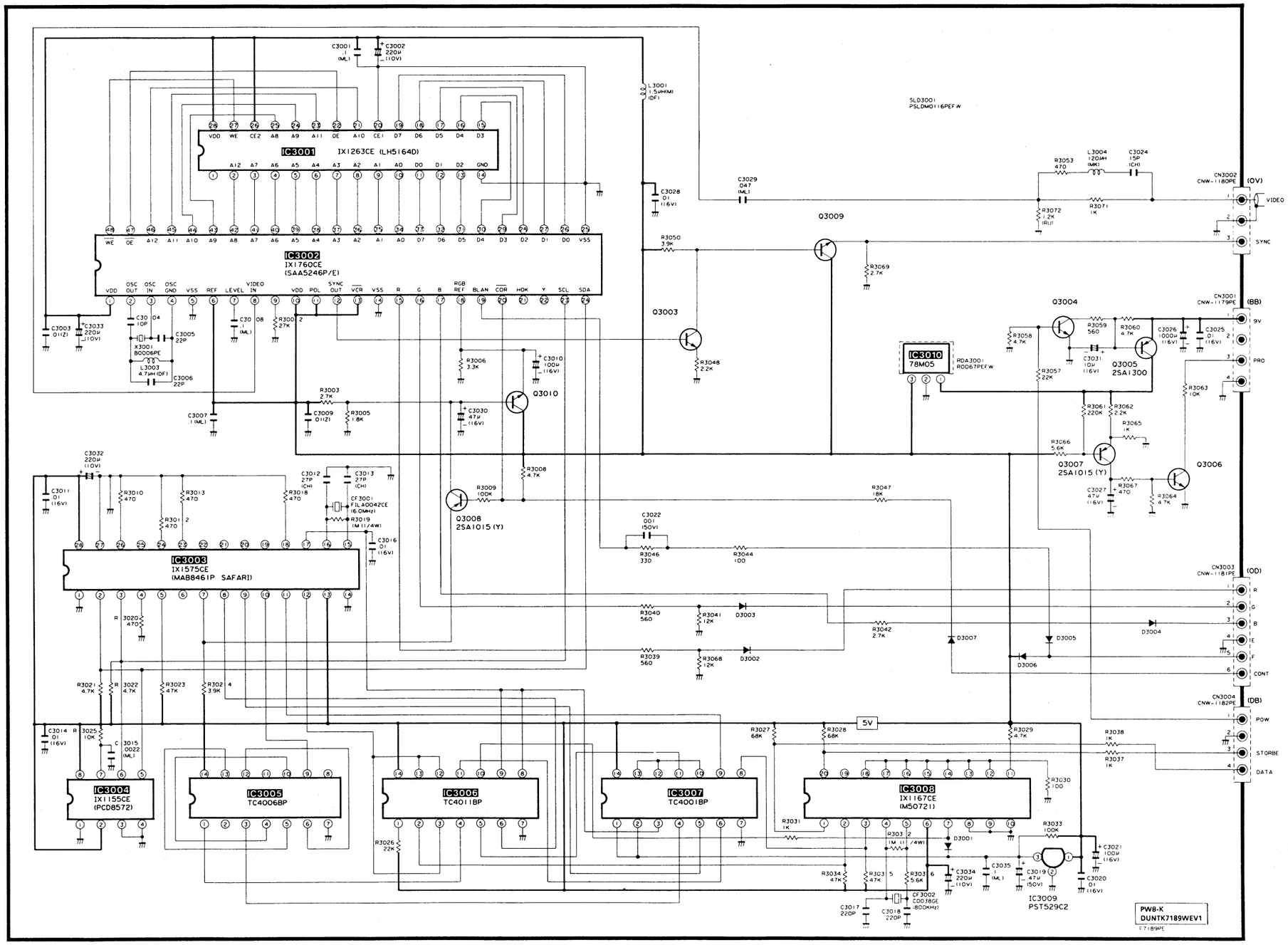


Wiring Side

BLOCK DIAGRAM



SCHEMATIC DIAGRAM: TELETEXT UNIT MODEL AN-222TX



NOTE:

1. *The unit of resistance "ohm" is omitted (K = 1000 ohms, M = 1 Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μF, unless otherwise noted P = μμF.*
4. *All transistors are 2SC1815(GW), unless otherwise noted.*

This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

PARTS LIST

PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual: electrical components having such features are identified by ⚠ in the Replacement Parts Lists.
The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. 4. DESCRIPTION

★MARK: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description	Code

PWB-K DUNTK7189WEV1

TELETEXT UNIT

INTEGRATED CIRCUITS

IC3001	RH-iX1263CEZZ	J	LH5164D	AT
IC3002	RH-iX1760CEZZ	J	SAA5246P/E	BL
IC3003	RH-iX1575CEZZ	J	MAB8461P SAFARI	AX
IC3004	RH-iX1155CEZZ	J	PCD8572	AR
IC3005	VHiTC4006BP-1	J	TC4006BP	AQ
IC3006	VHiTC4011BP-1	J	TC4011BP	AF
IC3007	VHiTC4001BP-1	J	TC4001BP	AF
IC3008	RH-iX1167CEZZ	J	M50721	AD
IC3009	VHiPST529C2-1	J	PST529C2	AD
IC3010	VHiUPC78M05H1	J	78M05	AK

TRANSISTORS

Q3003	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q3004	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q3005	VS2SA1300//2E	J	2SA1300	AC
Q3006	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q3007	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q3008	VS2SA1015Y/1E	J	2SA1015(Y)	AC
Q3009	VS2SC1815GW-1	J	2SC1815(GW)	AB
Q3010	VS2SC1815GW-1	J	2SC1815(GW)	AB

DIODES

D3001	VHD1SS119//1E	J	1SS119	AA
D3002	VHD1SS119//1E	J	1SS119	AA
D3003	VHD1SS119//1E	J	1SS119	AA
D3004	VHD1SS119//1E	J	1SS119	AA
D3005	VHD1SS119//1E	J	1SS119	AA
D3006	VHD1SS119//1E	J	1SS119	AA
D3007	VHD1SS119//1E	J	1SS119	AA

Ref. No.	Part No.	★	Description	Code

PACKAGED CIRCUIT

X3001	RCRSB0006PEZZ	J	Crystal	AK

CERAMIC FILTERS

CF3001	RFiLA0042CEZZ	J		AD
CF3002	RFiLC0038GEZZ	J	800kHz	AE

COILS

L3001	VP-DF1R5M0000	J	1.5μH	AB
L3003	VP-DF4R7K0000	J	4.7μH	AB
L3004	VP-MK121K0000	J	120μH	AB

CAPACITORS

C3002	VCEAGA1AW227M	J	220	10V	Electrolytic	AB
C3010	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
C3021	VCEAGA1CW107M	J	100	16V	Electrolytic	AB
C3026	VCEAGA1CW108M	J	1000	16V	Electrolytic	AD
C3032	VCEAGA1AW227M	J	220	10V	Electrolytic	AB
C3033	VCEAGA1AW227M	J	220	10V	Electrolytic	AB
C3034	VCEAGA1AW227M	J	220	10V	Electrolytic	AB

MISCELLANEOUS PARTS

CN3001	QCNW-1179PEZZ	R	Connector 4-pin (BB)	AG
CN3002	QCNW-1180PEZZ	R	Connector 3-pin (OV)	AH
CN3003	QCNW-1181PEZZ	R	Connector 6-pin (OD)	AK
CN3004	QCNW-1182PEZZ	R	Connector 4-pin (DB)	AH
	LHLDW1019PEZZ	R	Wire Holder	AB

—— End of PWB-K ——

SX-51A7
AN-222TX

SHARP

T8069-S
Printed in Japan
W/S MW.KD